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GENERAL VIEW
OF THE
AGRICULTURE
OF THE COUNTY OF
CLYDESDALE.

WITH OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.

BY JOHN NAISMITH

DRAWN UP FOR THE CONSIDERATION OF THE BOARD OF AGRICULTURE
AND INTERNAL IMPROVEMENT.

*R. Academies -
London.*

And some
Have held the scale of empire, rul'd the storm
Of mighty war; then, with unwearied hand,
Disdaining little delicacies, seiz'd
The plough.

THOMSON: SEASONS.

GLASGOW:

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1798.



PRELIMINARY OBSERVATIONS
TO THE
CLYDESDALE RE-PRINTED REPORT.

AGRICULTURE has been regarded by the wisest men in all ages, as the most important employment of mankind, and the firmest support of a state; and being of the most laborious kind, and attended with uncommon hazard and difficulty, seems not only to merit, but demand, every possible degree of public patronage. Yet, notwithstanding the boasted improvements of modern times, it is wonderful to observe how little its interests have been regarded by statesmen and legislators. Amidst such general neglect, it is honourable to Britain, and must give pleasure to every lover of his country, that this useful art is at length dignified, by being made a national object, and engaging the attention of the first characters of this kingdom. Unhappily the generous exertions of the Board of Agriculture have commenced in unpropitious times, when the rage of war, having distracted the public attention, and the sullen spirit of party narrowed the minds of men, and raised up among them the demon of jealousy and distrust, in the room of general benevolence, every liberal enterprise of national improvement is stifled or suspended. But should tranquillity once more be restored, it may still be hoped that the patriotic operations of this honour-

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able Board may contribute largely to repair our misfortunes.

In this view, it is desirable to have even the smallest opportunity of promoting the agricultural improvement of the country, by furnishing part of the information required. But however agreeable it may be to undertake the task, in the execution it is no light matter for an individual to commit himself to the public, on such subjects, and under such circumstances, as the present.

When the agricultural state of the county of Lark was published in the year 1794, it had been recommended to make it as concise as possible. Accordingly the mass of collected materials was searched, and all possible pains taken to reconcile seeming contradictions, to purge the whole of errors and frivolous matter, and to give a brief extract of all the useful information, in the order which appeared to the writer to be the most natural. Copies of this were distributed among a number of the most considerable landholders, agriculturists, husbandmen, and indeed persons of every description in the county who had furnished articles of information, inviting them to return such remarks as should occur to them. But though some have been pleased to express a general approbation, not a single remark, or additional piece of information, has been sent; nor do the remarks on a few copies returned to the Board, by gentlemen residing in distant counties, contain any thing of moment. The writer is, therefore, left to himself in this republication, without a corroborating testimony to support him, or a correcting hand to set him right. The difficulty is also increased by the uncommon occurrences

of these eventful times. In the short period which has elapsed since this account was last published, undoubtedly the value of money has greatly sunk; but the price of all kinds of provisions still rose in a greater degree, even to alarm the nation, at one period, with the dread of a famine. The prospects of the husbandman were thus too much elevated; and the late reduction of the value of corn, with the scarcity and high wages of labourers, has thrown them into real distress. These and other concomitant circumstances, connected with the times, must affect the interest of agriculture; in what manner, however, it would be rashness to pretend to predict. But, in giving a fair state of the country, on the one hand, how can they be overlooked?—and, on the other, how can any safe conclusion be drawn from them?

But, under these difficulties, he shall endeavour, as well as he can, first to arrange the former uncontradicted facts, under the different chapters and sections to which they belong; and then, so far as his opinion seems necessary to fill up some articles in the new arrangement, he must beg leave to give it with freedom. It may, perhaps, in some cases, be singular; but if in any it should be thought erroneous, he hopes this will be imputed to defect of judgment, and not intention. At his advanced life, it is not probable the public will be again troubled with his sentiments; and on this account he is neither actuated by the desire of applause nor the dread of censure, but still would be sorry to give any just cause of offence. He hopes, therefore, to meet with candid indulgence, in giving his last faithful testimony on subjects which he deems of great importance to the national prosperity.

AGRICULTURAL SURVEY

CLYDESDALE.

CHAPTER I.

GEOGRAPHICAL STATE AND CIRCUMSTANCES.

SECT. 1.—*Situation and Extent.*

CLYDESDALE is so called from the noble river which has its source in the upper confines of the district, traverses it in a winding course of upwards of 60 miles, bisecting it longitudinally, and afterwards wafts the trade of Glasgow to the ocean. This tract is otherwise called the county or sheriffdom of Lanark. It is situated between $55^{\circ} 22'$ and $55^{\circ} 58'$ north latitude, and between $3^{\circ} 15'$ and $4^{\circ} 19'$ west longitude. It is in the centre of the country, between the Atlantic and German Oceans, and is bounded by the counties of West and Mid Lothians and Peebles on the E., by Dumfriesshire on the S., by the counties of Ayr and Renfrew on the W., and by those of Dumbarton and Stirling on the N. The greatest length from N. to S. is about 47 miles, and the greatest breadth from E. to W. about 32 miles. The square contents are perhaps nearly 870 miles, equal to 556,800 English acres, or nearly 445,440 of the ordinary Scotch measure.

SECT. 2.—*Divisions.*

This district is subdivided into three inferior divisions called *wards*, each under the particular jurisdiction of a substitute, appointed by the sheriff depute of the county. The upper ward, of which the ancient burgh of Lanark is the chief town, comprehends the parishes of Carluke, Lanark, Carstairs, Carnwath, Dunfire, Dolphinton, Walston, Biggar, Liberton, Lamington, Coulter, Crawford, a small part of the parish of Moffat, the rest of which is in Dumfriesshire, Crawfordjohn, Douglas, Wiston and Robertson, Syminton, Coyington, Pettinain, Carmichael, and Lesmahagow. The middle ward, of which the town of Hamilton is the centre, comprehends the parishes of Hamilton, Blantyre, Kilbride, Avondale, Glasford, Stonehouse, Dalsersf, Cambusnethan, Shotts, Dalziel, Bothwel, East Monkland, and West Monkland. The lower ward, lying immediately around the city of Glasgow, besides the country or barony parish of Glasgow, contains the parishes of Calder, Cambuslang, Rutherglen, Carmunnock, Govan, and a part of Cathcart; the remainder of this last parish being in the county of Renfrew.

There is a large map of this county published by Mr. Ross, in the year 1773, and an abridgement of it has been since made on a small scale. As no plan of the county has been taken for this report, which, for the sake of the many new lines of roads lately drawn, would have been desirable, the reader must be referred to these maps.

SECT. 3.—*Climate.*

There being a great difference in the situation and altitude of this county, not less variety takes place in the state of the weather than in the surface and soil of different parts. Besides that inconstancy of climate, to which the island in general is subject, there are circumstances in the local situation of the county, which occasion considerable variations of the weather, in the different parts of it; so that to be

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able to give a good account of these, would, perhaps, be to give a tolerable medium state of the weather in Scotland. The lower end of the county is situated in a narrow isthmus, not much more than 30 miles broad, between the Forth and the Clyde, which open gradually to the sea, on each side of the island, admitting the temperate breath of the sea breeze. The wind is computed to blow, about two-thirds of the year, from the S. W. and W. *, over a vast ocean, where no land intervenes, to prevent it from coming to the coast, saturated with the moderate temperature of that element. The winds from the easterly points, which, coming from the Continent, over a narrow sea, are sharper, blow less frequently, and their force is somewhat broken by the high land on the east side of the county, so that the cold damps, called *Easterly-Hars*, so prevalent on the east coast, seldom arrive here: consequently the cold is moderate. Intense frost is seldom of long continuance; and deep or long lying snows are rare: Hence there are few spots on which the verdure of the year is longer protracted. On the other hand, the most frequent winds coming over so wide an ocean, are fraught with vapour, which frequently overclouds the sky, cools the air, and renders the Summer's heat less intense; so that it is frequently scarce sufficient to ripen the fruits of the earth. These vapours, intercepted by the neighbouring heights in the counties of Renfrew and Dumbarton, fall in frequent and heavy showers, on the northern parts of the county. In going up the Clyde the surface flattens; scarce a mountain, between the river and the ocean, raises its head to catch the clouds; and the current of air passing, without interruption, across the country, the rain is

* That this is the most frequent and most forcible wind, is evident from the appearance of the trees, the tops of which generally incline to the N. E. And it is no less remarkable, that they put out the longest and strongest root towards the S. W., in order to support them against the most frequent attacks; so that, when a N. E. storm happens, triple the number of trees are blown down, which fall under as great blasts from the opposite quarter.

less *. This circumstance occasions other variations of the weather in different situations. The clouds, in passing over, often water the higher grounds on the eastern and western sides of the county; and, buoyed up by the dense air in the hollow, leave the middle parts dry. The effects of these, and other meteorological phenomena to be now mentioned, on agriculture and vegetation, merit attention.

But in discussing this subject, it may be proper here to premise, that the motions of the air, in calm weather, which sometimes vary, in the course of a few days, round all the points of the compass, being only breathings from the nearest clouds, which occur during the cessation of the more general currents, are not characteristic of the climate of any particular tract. The same thing may be observed of the rains which accompany thunder; they being neither dependant on the general winds, nor the position of the land, but falling indiscriminately on any place, over which electrical clouds happen to be suspended; though they are no doubt most frequent and copious near high summits which attract these clouds.

The most frequent wind, as has been already said, is from the S. W.; next to it is the N. E., which, for the most part, is accompanied with fair weather. The heaviest and most lasting rain, but not the most frequent, is from the S. E. The wind seldom blows long from the S. without bringing rain; and this rain is heavy, but of short continuance. The rain from the W. and S. W. comes in repeated showers, between short intervals of fair weather; and the greatest quantity of rain, here, comes from the latter, which, as the wind blows much from that quarter, in the beginning of the year, generally drenches the ground greatly before seed-time. Rains from the N. W., N., and N. E., are

* As a proof that the height of the land between the Clyde and the west coast is very moderate, there are places in the middle ward, on the north side of the river, from 100 to 150 feet above the level of the sea; from whence all the heights of the isle of Arran, above fifty miles distant, may be seen in a clear day.

neither frequent nor heavy, but fullen and unnourishing. The N. E. wind is most frequent in the months of April and May; it sometimes sets in in March, and is of great importance, in preparing the ground for the reception of the seed.

In a country, where there is almost every where an under stratum, through which no water can filter, in spite of every attention to draining, the land is soaked with water, which can only be drawn off by means of exhalation; and ground of this kind is not in a condition to exert its powers, till the cold, sluggish moisture of the winter is exhaled. When a course of dry weather does not happen, therefore, in due season, the seed time must either be deferred to a late period, or the seed, committed to the crude soil, will make but a slow and imperfect progress. This is one cause of the lateness of the Lanarkshire harvests. The air which overspreads the hollows, being dense and dry, contributes to quicken exhalation, so that the low lands dry sooner than those on the heights; upon which a lighter moister air floats, and flying showers oftener fall. The seed-time is therefore later, or the preparation less perfect on the heights than on the plains; which contributes, with other causes, to render the harvests less early and less mature on the former, than on the latter. Perhaps, too, there is a principle, mingled with the moist air of the heights, still more inimical to vegetation, than the moisture which the surface soil retains. Those huge masses of peat earth, with which the county abounds, are so cold and torpid that it is not uncommon, after a hard Winter, to find the frosty congelation, in large bodies, still remaining in them, when the Summer is far advanced, and the heat has been considerable. May we not then suppose, that the cold moisture arising from them, in exhalations, before it acquire the temperature of common air, may cool the earth, and benumb the vegetables over which it passeth? However this may be, it is certain, that the high lands, where these bodies of peat earth abound, are less fertile than they have been in early times; neither the

stately oak, nor its accompanying brush-wood, now appear, where they had once flourished abundantly; and now lie buried together under the torpid chaos: nor can the utmost industry restore them in that vigour, with which in former ages they have spontaneously grown. The oak particularly, now planted on the best soil, in the midst of a thicket, will barely live; while perhaps, within an hundred yards, one of a magnificent size may be found lying on the spot, where, it may evidently be seen, by its roots still fast in the earth, it had been produced.

Something to the same purpose may be observed respecting the annual productions of the earth. There are many places to be found, on the ridges on both sides of this county, which seem once to have been accurately cultivated, and now for a time left neglected. Judging from the appearance of the country where these places are, it is presumable that the climate in which they are situated is not adapted to the growth of corn; and it is probable they have been abandoned for that reason. But it is plain the cultivators had not always found this to be the case; for the appearance of the places in question is not like that of slight attempts, rashly undertaken, and quickly abandoned; but like that of fields, which have been for a considerable time under attentive culture*. How shall we account for this failure of fertility? The climate, upon the whole, is much the same as it was from the earliest notices we have of it. The illustrious biographer of Agricola, about the time when that general was erecting ramparts upon the northern confines of this

* Besides the increased cold, occasioned by the increase of peat moss, one may suppose other causes of this desertion. For example, it is said the wild grey oats still continued to be sown on some of the worst land in this county, about the beginning of the present century; and they are yet sown in some places of Galloway, and the North Highlands. This plant is hardier and thrives on worse land than the cultivated oats. The wild oats might have been cultivated on the places alluded to; and when the other oats came into general use, the fields which are fit only for the former, might be neglected. But this will hardly satisfy a person who has carefully examined the country, and discovered many other marks of diminished fertility.

county, characterises the Caledonian weather thus: "*Cœlum crebris imbris ac nebulis fœdum: Asperitas frigorum abest;*" which corresponds pretty much with the account above given, of the climate of the lower ward. It must therefore arise from some such local cause as that which has been stated. It is natural to suppose, that from those large beds of spongy matter, a considerable quantity of moisture charged with the chilling cold it has contracted, must be daily evaporated. This must either be dissipated in the surrounding atmosphere, increasing the cold all around the places from which it is drawn; or, creeping unmixed along the surface, produce still more baneful effects, wherever it spreads. In either case, peat mosses, besides being of little use themselves, are highly unfriendly to the general vegetation of the country; and as they are still accumulating, it is melancholy to anticipate, to what height their malignant influence may arrive.

We now return to take notice of other effects of the climate on vegetation. The greatest droughts are in the months of May and June. When the weather is dry in the latter end of May, it commonly continues so in June, till thunder brings rain*. The violent exhalation, in these months, suddenly binds up the wet clay soil, making it so hard that the roots of the plants cannot extend in it; so that vegetation is almost suspended till the rains come. The ground is generally well watered towards the latter end of June and beginning of July, and then a great growth commences; and as the latter end of Summer is generally more rainy than the beginning of it, this growth is protracted till the season is far advanced, and occasions a late harvest. The drought in May, which is often accompanied with a cold wind, greatly checks the rising of the pasture, but is still more injurious to the hay crop, which, when stunted at this time, never again recovers.

Proceeding up the Clyde, the island becoming broader,

* From the 8th of May to the 18th of June, 1788, not a drop of rain fell in the middle ward.

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and the situation farther distant from the mouth of the river, the influence of the sea air diminishes. The eminences in the upper ward being more frequent and of greater altitude, give more interruption to the current of air from sea to sea; and the climate is more similar to that of a continent, the Summer's heats and the Winter's colds being more steady and more intense*. There is more rain above the falls than in the middle ward; but from the nature of the soil, it is seldomer injurious to the husbandman, excepting in the time of harvest; nor are the

* The following table is extracted from the accurate observations of an ingenious friend, residing in the low grounds of the upper ward, on the extremes of Summer heat and Winter's cold, for a number of years past, contrasted with the greatest heat and cold on the same days; extracted from a very exact journal of the weather kept near the medium height of the middle ward, and will best illustrate what is here stated. By thermometers on Farenheit's scale.

TABLE.

Showing the extremes of heat and cold in the upper and middle wards, on the days under-mentioned.

HEAT.					COLD.				
Greatest Height of the Thermometer.					Degrees below the Freezing Point.				
Year.	Month.		Up.	Mid.	Year.	Month.		Up.	Mid.
1785	June	25	80°	76°	1783	Dec.	30	30°	24°
		26	80	77	1784	Jan.	21	31	17
		27	85	87			23	35	20
		28	85½	84			25	30	10
		29	82	80			27	23	21
		30	82	80	1785	Dec.	13	28	16
1788	July	26	80	74			29	25	11
		17	79	75			30	30	15
1791	July	2	79	56			31	41	24
		3	81	66	1786	Jan.	1	43	40
1792	Aug.	8	78	70			2	41	19
1793	July	9	78	72	1788	Dec.	20	32	18
		10	84	71			16	38	32
		11	77	66	1789	Jan.	11	27	16

NOTE, On the 3d of October, 1782, the thermometer stood 16° below the freezing point, and on the 4th, 12°, in the upper ward. The extreme cold of these days is not marked in the middle ward journal. The earth was frozen, but at nine A. M. the thermometer was above the freezing point.

Summer's droughts so hurtful. Ascending to the upper extremity of the county, another change again takes place. The highest summits intercept the clouds, and occasion frequent rains; frequent mists hover on the hills, obscuring the sky and cooling the air; the Summer heats are frequently interrupted by cold gusts; the Winters are cold and tedious, long retaining on the surface the heavy snow which falls in that tract.

Although the general character of the climate is the same now as in former ages, it is certain that courses of good and bad seasons repeatedly occur, which materially affect the produce of the earth. It would be a curious inquiry, were we able to trace these revolutions for a considerable series of years; and might probably lead to some discovery, whether there be any fixed law in Nature, by which they are brought about. But, perhaps, there are no records to be found, which could be depended upon for this purpose. It is said there are registers of the price of grain, which tend to show that a course of bad seasons happened about the end of the 16th century: and it is well authenticated, that six or seven years, near the end of the 17th, were very unfavourable. By the concurring testimony of many persons living and lately dead, we are assured, that from near the beginning of the present century, to the year 1740, the seasons were mostly very favourable. From thence to 1756 inclusive, many unfavourable ones occurred. The year 1757, though the Spring was backward, was a warm Summer, and certainly had a good crop; for the price of barley fell this year from 11. 6s. 8d. to 10s. 6d. per boll. From this to 1772, there were several pretty favourable seasons; and few have happened since, in which the fruits of the earth have not suffered from unseasonable frosts in Spring or Autumn, or both. The years 1779 and 1781, were the most favourable, and the crops early and good. The severity of the year 1782, is too memorable to be forgotten; and the frosts in the beginning of Summer and in Autumn, have

been very prevalent ever since. It may be proper here to subjoin the degrees of cold, by which different vegetables are injured.

T A B L E,

Of the Degrees of Cold beneath the freezing point, which injure different vegetables.

	Degrees.
Potatoes, either in Spring or Autumn, the leaves affected and growth checked, by	2
Ditto, ditto, the stem attacked, and its farther growth prevented, and if in Autumn, the root makes no more progress, by	4
Green peas and barley, when the ear is just become milky, spoiled by	4
Beans, when green or wet, by	5
Oats, when the ear is milky, by	6
Ditto, when green, and the ear watery, on porous soils, will stand, without being much hurt	7
Ditto, ditto, on firm clay, ditto	10
Clover, in the tender leaf, hurt by	3
Ditto and rye grass, the crop in May or June, ruined by	9
Turnips on the ground in Winter, injured by	24
Ditto, ditto, totally destroyed, by	30

Note, That frost hurts plants soonest when the air is still and the dew great, or when it comes on immediately after rain; and the injury does not happen unless the frost continues till the sun be above the horizon. When the frost goes off before morning, and the sky is overcast with fresh clouds, plants escape unhurt, though they may have suffered a pretty severe frost during the night.

We shall now conclude this article by subjoining the following table, containing an abstract of the average heat, and number of dry and wet days every month of the year, for two periods of 5 years each, at 20 years distance, which, it is hoped, along with what has been said, will convey a pretty distinct idea of the state of the weather.

TABLE,

Showing the average height of the Thermometer, and number of dry and wet days in the Middle-Ward of CLYDESDALE, for five years, beginning with 1768, and five years beginning with 1788.

Years.	April.			May.			June.			July.			August.			September.			Amount.		
	Ther.	Dry	Wet	Ther.	Dry	Wet	Ther.	Dry	Wet	Ther.	Dry	Wet	Ther.	Dry	Wet	Ther.	Dry	Wet	Ther.	Dry	Wet
1768	50	23	7	59	29	2	62	28	2	64	19	12	63	25 $\frac{1}{2}$	5 $\frac{1}{2}$	57	19 $\frac{1}{2}$	10 $\frac{1}{2}$	355	144	39
1769	49	24 $\frac{1}{2}$	5 $\frac{1}{2}$	56	26	5	58	20	10	65	24	7	61	21	10	58	18 $\frac{1}{2}$	14 $\frac{1}{2}$	347	134	49
1770	44	25	5	56	25 $\frac{1}{2}$	5 $\frac{1}{2}$	58	21 $\frac{1}{2}$	8 $\frac{1}{2}$	63	23	8	66	27	4	61	20	10	348	142	41
1771	46	26 $\frac{1}{2}$	3 $\frac{1}{2}$	56	22	9	64	27	3	65	24 $\frac{1}{2}$	6 $\frac{1}{2}$	61	22 $\frac{1}{2}$	8 $\frac{1}{2}$	55	25	5	347	147 $\frac{1}{2}$	35 $\frac{1}{2}$
1772	47	27	3	55	26	5	63	24	6	65	23 $\frac{1}{2}$	17 $\frac{1}{2}$	62	24 $\frac{1}{2}$	6 $\frac{1}{2}$	58	23	7	350	148	35
Sum.	236	126	24	282	128 $\frac{1}{2}$	26 $\frac{1}{2}$	305	120 $\frac{1}{2}$	29 $\frac{1}{2}$	322	114	41	313	120 $\frac{1}{2}$	34 $\frac{1}{2}$	289	106	44	1747	715 $\frac{1}{2}$	199 $\frac{1}{2}$
Aver.	47	25	5	56	26	5	61	24	6	64	23	8	62	24	7	58	21	9	349	141	40
1788	41	22	8	54	27	4	50	27	3	55	20	11	62	25	6	54	20	10	316	141	42
1789	43	22	8	52	24	7	55	18 $\frac{1}{2}$	11 $\frac{1}{2}$	58	17 $\frac{1}{2}$	13 $\frac{1}{2}$	61	27	4	55	22	8	324	131	52
1790	40	24 $\frac{1}{2}$	5 $\frac{1}{2}$	50	25	6	54	23 $\frac{1}{2}$	6 $\frac{1}{2}$	56	24	7	55	18 $\frac{1}{2}$	12 $\frac{1}{2}$	50	20 $\frac{1}{2}$	9 $\frac{1}{2}$	305	136	47
1791	44	21	9	47	21 $\frac{1}{2}$	9 $\frac{1}{2}$	56	22	8	56	21	10	58	23 $\frac{1}{2}$	7 $\frac{1}{2}$	56	27	3	317	136	47
1792	46	23	7	47	22	9	53	22	8	58	21	10	59	25	6	49	20	10	312	133	50
Sum.	214	112 $\frac{1}{2}$	37 $\frac{1}{2}$	250	119 $\frac{1}{2}$	35 $\frac{1}{2}$	268	113	37	283	103 $\frac{1}{2}$	51 $\frac{1}{2}$	295	119	36	264	109 $\frac{1}{2}$	40 $\frac{1}{2}$	1574	677	238
Aver.	43	22	8	50	24	7	53	23	7	57	21	10	59	24	7	53	22	8	313	136	47

TABLE CONTINUED.

Years.	January.			February.			March.			October.			November.			December.			Amount.		
	Ther	Dry	Wet	Ther	Dry	Wet	Ther	Dry	Wet	Ther	Dry	Wet	Ther	Dry	Wet	Ther	Dry	Wet	Ther	Dry	Wet
1768	31	23	8	39	16	13	43	27	4	53	23 $\frac{1}{2}$	7 $\frac{1}{2}$	40	18 $\frac{1}{2}$	11 $\frac{1}{2}$	35	19	12	241	127	56
1769	34	25 $\frac{1}{2}$	5 $\frac{1}{2}$	42	22	6	42	23	8	52	24 $\frac{1}{2}$	6 $\frac{1}{2}$	42	23	7	43	21 $\frac{1}{2}$	9 $\frac{1}{2}$	255	139 $\frac{1}{2}$	42 $\frac{1}{2}$
1770	37	24 $\frac{1}{2}$	6 $\frac{1}{2}$	42	23 $\frac{1}{2}$	4 $\frac{1}{2}$	34	26	5	49	25	6	37	18	12	38	20	11	237	137	45
1771	30	27	4	41	25	3	37	26	5	51	18	13	46	23 $\frac{1}{2}$	6 $\frac{1}{2}$	43	25	6	248	144 $\frac{1}{2}$	37 $\frac{1}{2}$
1772	31	23	8	27	24	5	39	25	6	54	21 $\frac{1}{2}$	9 $\frac{1}{2}$	46	16 $\frac{1}{2}$	13 $\frac{1}{2}$	40	26	5	237	136	47
Sum.	163	123	32	191	110 $\frac{1}{2}$	31 $\frac{1}{2}$	195	127	28	259	112 $\frac{1}{2}$	42 $\frac{1}{2}$	211	99 $\frac{1}{2}$	50 $\frac{1}{2}$	199	111 $\frac{1}{2}$	43 $\frac{1}{2}$	1318	684	228
Aver.	32	25	6	38	22	6	39	25	6	52	22	9	42	20	10	40	22	9	243	137	45
1788	37	28 $\frac{1}{2}$	2	36	25 $\frac{1}{2}$	3 $\frac{1}{2}$	36	28 $\frac{1}{2}$	2 $\frac{1}{2}$	45	29 $\frac{1}{2}$	1 $\frac{1}{2}$	41	24	6	27	28	3	222	164	19
1789	32	24	7	38	20 $\frac{1}{2}$	7 $\frac{1}{2}$	34	26	5	46	21	10	38	22 $\frac{1}{2}$	7 $\frac{1}{2}$	40	22	9	228	136	46
1790	35	26	5	42	23	5	42	27	4	46	25 $\frac{1}{2}$	5 $\frac{1}{2}$	36	24	6	34	23	8	235	148 $\frac{1}{2}$	33 $\frac{1}{2}$
1791	35	18	13	36	20 $\frac{1}{2}$	7 $\frac{1}{2}$	41	27	4	47	22	9	38	21	9	30	27	4	227	135 $\frac{1}{2}$	46 $\frac{1}{2}$
1792	31	26 $\frac{1}{2}$	4 $\frac{1}{2}$	39	24	5	38	22	9	42	22	9	41	24	6	34	20	11	225	138 $\frac{1}{2}$	44 $\frac{1}{2}$
Sum.	170	123	32	191	113 $\frac{1}{2}$	28 $\frac{1}{2}$	191	130 $\frac{1}{2}$	24 $\frac{1}{2}$	226	120	35	194	115 $\frac{1}{2}$	34 $\frac{1}{2}$	165	120	35	1137	722 $\frac{1}{2}$	189 $\frac{1}{2}$
Aver.	34	25	6	38	23	5	38	26	5	45	24	7	39	23	7	33	24	7	227	144	38

This table is abstracted from the journal of a learned and ingenious gentleman, who has regularly kept it, in the centre of this district, for 27 years; during which time he has accurately noted the state of the weather, the rains, snows, &c. which happened every day, the rise and fall of the mercury in the barometer and thermometer, with other meteorological remarks. In this abstract, the average heat is taken from the height of the thermometer at nine o'clock in the morning.

When rain, hail, or snow, had fallen for the greatest part of the day, it is called a wet day. If there were only some showers in a day, it is made half wet, half dry; but when there were only some slight drizzling, two of such are made half a day. The six months from March to October, the heat of which is necessary to raise the vegetables cultivated by husbandmen, are in the first part of the table; and the other six months, in the beginning and end of the year, in the second. But though this shows something of the time and continuance of rain, it conveys no idea of the quantity which fell; nor has it been ascertained in this country, except by the learned professor of Natural Philosophy of the University of Glasgow, Mr. Anderson, who has invented, perhaps, the most ingenious and accurate rain gage that has yet been known. It receives the rain at a little more than 100 feet above the level of the sea, and has been regularly kept since the year 1781; previous to which the rain was measured by an old rain gage. This gentleman has been so kind as to communicate the quantity of rain fallen at Glasgow, for each month and year since his apparatus was erected, from which the quantity, for the last five years of the foregoing table, is extracted. For the reasons already assigned, the rains are no doubt more copious at Glasgow, than in the flat country some miles up the river; and do not always fall at the same period on both places: yet it may be observed, that in the months which have the greatest number of wet days, in the one, the quantity of rain in the other is generally greatest. The depth of water, which

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had fallen in each month, is marked in the columns under the name of the month, in inches and decimal parts.

TABLE,

Of the rain which fell at Glasgow, for the five years under mentioned.

	Januar.	Febr.	March.	April.	May.	June.	July.	August	Septem.	Octob.	Novem.	Decem.	Sum.
	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts	In. Parts
1788	2.4	.98	1.72	1.68	.916	1.251	2.971	1.29	2.8	1.7	1.57	.25	19.428
1789	3.9	3.91	.86	1.686	1.85	1.82	4.68	.67	3.875	2.78	2.67	.6.5	35.201
1790	2.07	2.81	.51	2.03	2.02	1.06	3.3	3.774	4.373	3.23	2.	4.29	31.467
1791	3.97	2.4	1.12	2.219								3.106	32.105
1792	1.71	1.721	3.21	2.32	2.783	2.3	2.773	2.835	3.315	4.082	2.272	6.624	35.945
						Six months here in cumulo 15.22							
Sum.	14.05	11.821	7.42	9.315	7.569	6.431	13.724	8.569	14.363	11.792	12.512	20.67	154.146
Aver.	2.81	2.364	1.584	1.983	1.892	1.607	3.431	2.142	3.59	2.698	2.502	4.134	30.829

SECT. 4.—*Soil and Surface.*

This county is so extensive, and the surface so greatly diversified, that it would be impossible to give any tolerable map of soils. The upper ward, which is nearly two-thirds of the whole county, is mostly mountainous, or at least hilly and moorish; and from the nature of the soil, and the great elevation of the country, not capable of much agricultural improvement: between two-thirds and three-fourths of its extent may be comprehended under this description. The wide parishes of Crawford and Crawfordjohn, the greatest part of Lamington and Coulter, are high and rugged. Three-fourths of Douglas and Lesmahagow, on the one side, and of Dunfrie on the other, are either moorish heathy land, or covered with beds of peat earth, yielding but little useful herbage. A considerable part of the parishes of Carluke, Carstairs, Lanark, Camwath, Walston, Dolphinton, and Biggar, is of much the same quality.

At the head of the county, where it bounds with that of Dumfries, the country is very mountainous. The great edifices of nature are so closely huddled together, that their grandeur is lost to the eye of the beholder. When he traverses the hollows, only the sides of the nearest mountains are presented to his view; if he climbs an eminence, he sees nothing but a confused group of rugged tops, with the naked rock frequently appearing among the herbage. The elevation of this tract is very great, the site of the village of Leadhills being computed to be 2000 feet above the level of the sea, and the top of one of the *Lewithers*, a ridge of hills near that place, has been found to be 1100 feet higher, making the height of the summit 3100 feet.

In proceeding down the Clyde, the prospect opens; the hills stand at a greater distance from one another, and the ascents are less abrupt: villages, farms, corn fields, and plantations of trees, appear among the eminences; and the mixture of hill and dale forms a scene at once simple and sublime. The nature of the soil, however, is not always

more fertile, as the elevation becomes less. The pastures on the heights of Crawford are superior to those of Douglas or Dunfire. The former are upon hard rock, and many of them pretty dry, covered with a thick mixture of short heath and sweet grasses; sometimes a close verdant carpet, with very little heath. The latter are frequently wet and spongy, and their herbage thin and coarse. As the hills decline in height, the rock more seldom appears on the surface; and beds of gravel, of a considerable depth, are sometimes seen.

Tintoe, or Tintock, is the last great hill to the north, and forms the boundary of the hilly district on that side. The height of this hill is about 2260 feet above the level of the sea; and the medium height of the arable land around its foot from 600 to 700 feet. From Tintoe, the face of the country is softened down to gentle elevations and depressions; and the Clyde slowly glides, with many windings, through a tract of beautiful meadows, for above a dozen of miles, till it arrives at the head of the celebrated falls. From thence, it rushes from cataraet to cataraet, foaming among the fragments of rock for about six miles; and regains its quiet bed and gentle motion in the lower part of the upper ward. The uppermost fall is that of Bonnington, where the river precipitates over the edge of a perpendicular rock. The height of this, including a little one immediately above it, is about 30 feet. The second fall is that of Corhouse, over which the river dashes from one ledge of a shelving rock to another. Its perpendicular height is 70 feet. Dundaff fall is 10 feet; and there are three distinct falls at Stonebyres, succeeding one another, which measure together about 70 feet.

The principal part of the arable land above the falls is in the parishes around Tintoe, which lie along the side of the river. The soil of the meadows by the river side, formed by the slime deposited in floods, is of the nature of earse ground, with a greater or less mixture of sand, in proportion to the quicker or slower motion of the stream, by which

it has been deposited. These meadows are very fertile, and are still receiving additions from the inundations of the river. But this cause of fertility is also the cause of frequent and considerable damage, the inundations sometimes destroying the crops, shifting the course of the river, carrying away the rich soil, and leaving beds of sand and gravel in its stead. The uplands, with the exception of some few places where springs arise, are dry and very fertile, generally of a light and friable quality, with an under stratum of sand or gravel of a considerable depth. Some places occur which have not been sweetened by culture, and have a sterile appearance:—others, where the soil is either moorish and spongy, or somewhat of an argillaceous quality, having an impervious under stratum. This last is more frequently the character of the land which lies distant from the river.

From the beginning of the falls downward, the style of the country is altogether changed. Instead of the basaltic or whin rock standing in perpendicular columns, the freestone rock, lying in horizontal strata, begins to take place. The subsidence of the land does not keep pace with the fall of the Clyde. From a mild and calm river, softly flowing through level meadows and wide expansive banks, it becomes an impetuous torrent, deep ingulfed in a double range of steep hills, seeming impatient of its straitened course. The brooks which fall into it are somewhat of the same character. The rushing waters, the lofty and diversified rocks, the towering summits, the overhanging woods, exhibit altogether a scenery, in which the beauties of nature are happily blended with her grand and sublime works, and form a proper subject to warm the imagination, and exercise the genius, of the poet and the landscape painter; but it is the business of agriculture to dwell on plainer scenes.

The greatest part of the arable land in the parishes of Lanark and Lesmahagow, is dry, light, and friable, though much less fertile, somewhat resembling that in the neighbourhood of Tintoe, already described. In the lower part of the latter, the clay soil takes place; and much of the soil

of Carlisle parish is either of a clay nature, or has a dense argillaceous bottom. A great deal of it is damp, cold, and barren; but some of it is of a very good quality; and that verge of the parish which lies along the Clyde, is not less fertile in soil than rich in picturesque beauties.

Towards the lower part of the upper ward, though the soil in general is less fertile, the country becomes more interesting. Handsome seats, surrounded with well dressed fields, sheltered with clumps and belts of trees, are frequent; villages filled with industrious inhabitants, arise on all sides; and the efforts of those people, for their own accommodation, are continually giving beauty and fertility to some new spots. The course through which the Clyde flows gradually opens; the river expatiates, and gently purls over its pebbled bed, through alternate tracts of sloping banks and fertile valleys, ornamented sometimes with a mixture of orchards and copse-wood, sometimes with tufts of forest trees.

At the commencement of the middle ward, the loftiness of the land is considerably diminished, and it still continues to fall to the N. W. The whole face of the country, when beheld from any distant height, appears like one great plain. Plain, however, is not the character of the county of Lanark. The surface is every where diversified by wavy inequalities, scarce a plain of any considerable extent intervening, except the valleys along the sides of the river; from which the surface, as it recedes, rises irregularly to the highest ridge, on each side, near the confines of the county. The height of these ridges, if a few particular summits of no great importance be excepted, is not more than 700 feet above the level of the sea. The site of the town of Hamilton, on the low ground, in the centre of the middle ward, is computed to be from 100 to 140 feet. The medium height of the cultivated land will probably be from 250 to 300 feet.

Although there is a great diversity of soil in the middle ward, it is most generally of a clayey nature, with a greater or less intermixture of sand, and very different in colour, conformation, and degrees of fertility. The bottom is a solid

argillaceous substance, sometimes seemingly homogeneous, and lying in regular horizontal laminae, but oftener of a mixed nature, without the appearance of divisions in any direction, and commonly mixed with little roundish stones of different sizes and appearances. Sometimes a little tract of sandy or gravelly soil occurs; and when a bed of this open quality is of a tolerable depth, the land is dry; but wherever the clayey under stratum approaches near the surface, which frequently happens, the soil is soft and wet. At some distance from the river is frequently found, lying upon a clay bed, a thin loose soil, much disposed to heave with the vicissitudes of the weather, and very unfit to furnish either nourishment, or a sufficient hold to the roots of plants. The black or grey soil, on the high moorish grounds, is somewhat similar to this, but generally bears a good deal more grass. The water-formed soils in the valleys, by the sides of the river and some of the other considerable streams, differ greatly from all the above mentioned, being naturally more fertile, deeper, and generally less apt to be injured by rain, as they lie upon a bed of open gravel. They differ also from one another, according to the nature and proportions of the materials of which they have been originally composed. The rich mellow earth, which, by some people, has been distinguished as a species of soil, under the name of *loam*, being the residuum of decomposed vegetables continually accumulated, may be a part of any soil, where circumstances have occasioned this accumulation, and will be more or less fertile in proportion to the nature and quantity of the vegetables which have produced it, to the quality of the soil upon which it has been ingrafted,—to the bottom on which it lies,—and to the exposure and elevation in the atmosphere. Accordingly, we find these loamy soils, in different places, possessing very different degrees of fertility. They are either in those fields near farm-houses, where the farm dung has been long repeatedly applied, called *old crofts*, or on dry bottoms, where leaves of trees and sweet herbage have long been allowed to rot, or where the same

substances have been carried down by streams, and lodged in the valleys. The best of these are where the original soil is at the same time firm and friable, and the bottom open and dry.

Besides the above mentioned kinds of soil, a considerable part of the surface is covered with beds of peat earth, which have overwhelmed the original soil, and assumed its place. These are chiefly of two kinds, the one generally of a moderate thickness, composed solely of decayed vegetables, nourished by a cold watery soil, and damp atmosphere. As those vegetables, which are nourished by a genial heat and kindly soil, are quickly susceptible of the putrid fermentation, and in rotting fall into loam; so those that thrive in cold moisture, have something in their nature, which, in a great measure preserves their form and bulk, even in decay; and by the growth of one year above another, through the lapse of time, in a neglected country, they accumulate into beds of this inflammable earth. Almost all the tribe of *Mosses*, (*Musci*) and some other coarse aquatic plants, are of this nature; and hence, perhaps, those accumulations have got the name of *moor*. When those beds lie on low ground, where water can carry particles of heavy earth upon them, they are thus rendered less porous, and produce a considerable quantity of grass; when they are on rising ground, heath (*erica*) and deerhair (*scirpus cespitosus*) are the chief productions. Some of these have been drained, pared, and burnt, and produced pretty good crops of corn and grass. The other kind lies generally in plains or hollows among the eminences, and is generally of a great depth. It is evident that all of them, in former times, have been forests of large trees; some of which having fallen down across the water course, and intercepted whatever was brought along by the stream, must have formed dams; which, stopping the water, would convert the whole into a standing pool. In this manner the trees would die, as the standing water prevailed over their roots, and the whole forest at length became prostrate.

Over these, mosses, and a variety of aquatic herbage, have

grown, from age to age, till they are swollen to great masses of spongy matter; these are called *Florus* or *Floro-mosses*; they are much more extensive in this district, than the other, and in a country where coals abound, of very little use, neither producing much esculent herbage, nor admitting cattle to go safely in quest of it. At the same time they may almost be said to be irreclaimable. Only two methods have hitherto been proposed for this purpose; the one is to lead some brook to the place, and to float away the spongy surface, in the water, by cutting it into fragments with spades. The bottom after being properly drained and cultivated, is capable of producing corn or grass. The other is to drain the whole sufficiently, to smooth the surface by pairing, burning, &c. and then to give a thick top dressing of any kind of heavy earth, such as sand, small gravel, or clay, and perhaps clay is the best. This soon covers the whole with verdure, and may be repeated from time to time, as occasion requires. It is an improvement to stir the surface by turning it with the plough, after it has acquired solidity, so as to mix and incorporate the different kinds of earth. The first method has not been practised in this country, except in the making of drains. The second has been followed in some few instances, with considerable success; and there is the more encouragement to continue it, that when the most barren clayey substance, dug at a great depth below the surface, in which all vegetables die while it lies in a mass, when spread over the mossy substance, will, in a year or two, produce white clover and other sweet herbage*. But, alas! what labour would be sufficient to subdue the sterility of such extensive wastes! the mosses of the middle ward being, as nearly as can be computed, about 42,000 acres, which is almost a third of the whole extent of the district. Spots occur on the lower ground, on which another kind of mossy earth is found, formed by cold springs, arising on the sur-

* An important discovery has been lately made, in a neighbouring country, with respect to the reclaiming of mosses;—some notice of which shall be taken in a future chapter.

face, and encouraging the growth of those plants, of which this kind of earth is composed; but these are of very inconsiderable extent.

Having now mentioned the different soils to be found in the subdivision of the county of which we are now treating, it may be proper, in order to give a better idea of it, to take a more particular view. The highest ridge on the north side runs along the eastern extremity of Cambusnethan parish, through the middle of that of Shotts, where this ridge is pretty high and rocky, and thence through East Monkland parish, declining a little as it proceeds westward. In these three parishes, particularly in that of Shotts, lies the greatest part of the *mosses* to be found on this side the river. Much of the rest of the soil along this ridge is moorish, coarse, and wet. All of it, however, is not of so bad a quality. Along the Calder, which divides the parishes of Cambusnethan and Shotts, there is a tract of pretty good soil on both sides. Near the head of this stream, it is light, sandy, or gravelly, and pretty dry; farther down it becomes a strong clay. Many fields in East Monkland, though high, are tolerably fertile; some inclined to sand, some to clay, a considerable part is of a grey moorish soil, and some of a mixed nature. This tract is interspersed with spots of pasture and marshy meadow, saved annually for hay. The opposite ridge, beginning on the parish of Avondale, is a continuation of the hilly range, which divides the parishes of Douglas and Lesmahagow from Ayrshire, and runs from Avondale, through Kilbride, Cambuslang and Carmunnock, to the county of Renfrew. The wilds here are much more extensive than those on the north side of the Clyde. Through a tract of twelve miles long, and sometimes a considerable breadth, there is scarce any thing but mosses and benty or heathy pasture, very wet and coarse; a mixture here and there is somewhat drier, and may be called green. The arable land of Avondale is but a small proportion of the whole, lying in the lower part of the parish. It is mostly of a gravelly nature, and frequently encumbered with springs arising

on the surface. Many fields may be said to be fertile, and particularly produce abundance of good grass, when left untilled. Above three-fourths of the parish of Kilbride are arable, the soils are various. On the S. E. boundary is a free soil, lying upon an open hard rock, pretty fertile; more to the N. and W. it becomes a stiff moist clay; on the west side the soil is a happy mixture, and very productive. Through these two parishes, considerable tracts of level meadows are interspersed among the cultivated fields; on some of them the spret (*juncus articulatus*) prevails; others, particularly those which have had the soil enriched by the overflowings of some neighbouring brook, producing abundance of sweet hay. The parishes of Stonehouse and Glasford, along the banks of the Avon, are mostly arable. The banks of this river, from its head, till it has passed those parishes, is destitute of copse wood; and the country has a plain, but not unpleasant pastoral appearance. The soil is tolerably good. In Stonehouse is a good deal of sandy soil, pretty dry, and of a pleasant improveable quality. In Glasford it is more frequently gravelly, mostly dry, but springs sometimes occurring. As the land recedes from the Avon, on both sides, the argillaceous bottom approaches nearer the surface, and is covered, either with a grey moorish soil, or a soft earthy clay, frequently thin and moist. In the high part of Glasford, there is a considerable extent of moss. In all hollows among the high grounds, on both sides of the county, the common rush (*juncus conglomeratus*) prevails very much.

What part of the middle ward remains yet undescribed, viz. the lower part of Cambusnethan, the parishes of Dalziel, Bothwel, and West Monkland on the north side of the Clyde, and those of Dalserf, Hamilton, and Blantyre on the south side, lie pleasantly sloping towards the river on both sides. The length, along the banks, is upwards of twelve miles, and probably near half that in breadth, and is perhaps a tract not inferior in beauty to any other in Britain. At the head of this tract the banks of the Clyde have already

expanded, and continue to open downward to its confluence with the south Calder, admitting valleys of varied breadth along the sides of the river. Here again the scene varies, and bold banks, in the parishes of Bothwell and Blantyre, hem it in on each side. From thence they expand and contract alternately to the extremity of the county, exhibiting every where a beautiful variety. The same great materials, —flowing waters, winding valleys, and swelling banks, form the ground-work of the landscape, both above the falls and in the lower part of the county; but the finishing of the one is entirely different from that of the other. In the former, nature appears in the elegant simplicity of a handsome undress; in the latter, magnificently arrayed in her richest ornaments. The soil and climate seems to be much disposed to the growth of wood, and spontaneous copse woods every where fringe the hanging banks. Besides the estates of great land-holders, much of the land is parcelled out in moderate and small properties. The industry and judgment which so many people of all ranks have exerted, to shelter their properties, and adorn their places of residence, have dispersed, over the face of the country, groupes of trees, appearing in a beautiful disorder, as if scattered by the hand of chance. Numerous villages and hamlets contribute to enrich the scenery. The labours of a number of husbandmen, employed in the improvement of the fields, has produced a verdure which smiles almost perpetually in different corners, to whatever quarter the eye is turned. Orchards embosomed in woods, stand all along the Clyde, by the foot of the rising slopes:—thus that beautiful variety, which the face of the country has received from the hand of nature, is every where heightened and improved*.

The different kinds of soil, found in this tract, have been already enumerated. The valleys are very fertile, but bear a small proportion to the whole. Clay is the most prevalent soil, and a great deal of it is very productive; with at-

* Beauties of a cast somewhat more romantic, on the banks of the inferior rivers of Avon, S. N. and W. Calders, are frequent.

gentive culture and favourable seasons. Sandy and gravelly soils are rare. The loose heaving soil above mentioned, is to be found in some of the higher grounds, and is of the worst quality, perhaps, of any. There are no mosses, except on that side of the West Monkland parish which lies farthest from the Clyde. In this parish there is more sandy soil than in any other part of the tract. But what proportion there may be of each of these kinds of soil, in a country so diversified, it is scarcely possible to form a judgment.

The under ward is a very limited district, but having the city of Glasgow situated in it, a very important one. The banks of the Clyde, though abounding less in natural beauties than those above, are still more highly ornamented, being planted all along with handsome villas, the Summer retreats of the wealthy inhabitants of Glasgow, who, in their relaxations from business, have highly improved a considerable part of this tract. A rocky eminence, called *Diebmount*, occupies a part of the parish of Cambuslang. The soil upon and around it is light and stony; that of the rest of the parish is mostly clay, excepting that border which lies along the Clyde. The soil of Carmunnock parish is much the same with that of Cambuslang, but less improved by culture; and as the first does not approach the Clyde, the rich soil along the river is wanting. But the same ridge of hard rock runs through it, and is, in some places, almost destitute of soil. The higher part of Rutherglen parish is clay; the lower is either sandy, or rich valley ground, along the side of the river. Except a little clay on a rising ground, the parish of Govan is sand, originally of a very poor quality, but now highly improved, and mostly by the present race of inhabitants, whose local situation furnishes them, not only easy access to the dung of Glasgow, but strong motives to apply it.

It was here that the late Mr. Cross, sheriff-depute of the county, about 40 years ago, made his experiments in Tull's system of horse-hoeing husbandry, and cropping continually without manure. This he pursued with great perfe-

rance, and at length was convinced, that the land required to be recruited from time to time. He was a man of great judgment and attention; and is allowed to have been the first who roused that spirit of improvement in the neighbourhood, which has since been so successfully exercised. The barony of Glasgow is wonderfully diversified; the haughs (valleys) of Dalmarnock, &c. are fertile to a proverb. The north side of the parish rises in knolls, the tops of which are frequently hard and stiff, the bottoms wet and spongy. In many places the soil originally has been but indifferent, but its faults are much corrected by an uncommon degree of culture, to which the local situation gives great encouragement. The middle of Calder parish is barren, moist, and moorish; around the outside is a great deal of good soil, mostly light, and pretty dry.

Having now traversed the surface of the county, this article may be concluded, with a few general observations. Land in the same parallel, other circumstances being nearly similar, is always more valuable, in proportion to the comparative lowness of its situation; thus, for example, land on the elevated fields of Avondale and Kilbride on the one side, and of Cambusnethan and Shotts on the other, are proportionally less valuable than such as lie in the low tract between them, inasmuch as they are higher situated; the quality of the herbage being less succulent and nourishing, and the reproduction slower, when in grass, and the grain less plump and perfectly ripened, and the harvest later, when in corn. The same thing holds good in every other parallel through the county. The nature of the bottom or under stratum has the same kind of influence as the elevation; moist sweating bottoms producing grain of inferior quality, and ripening late. These observations, seemingly so trite and obvious, might have been avoided, had it not been for what follows. The arable land along the Clyde, above the falls, seems to be superior to any in the lower part of the county; not only to those fields, nearly on the same level, on the ridges of the country, but exceeding, in

real intrinsic fertility, the fine low grounds which are 400 or 500 feet less elevated. The meadows or valleys of the former, by the river side, are cropped and left in grass, for a few years alternately, and without receiving any manure, continue to yield abundant harvests. The uplands, when properly freed of weeds, are very productive, with half the manure which is found necessary in the lower part of the county; and the harvests are generally earlier. One circumstance, however, tends greatly to diminish the difference of the comparative value of land in these different districts. The spring, but more especially the autumnal frosts, are more frequent, and more intense, in the upper country than in the lower. Those calamitous mildews, sometimes, in the month of August, fall down from the sides of the mountains, condense at the bottom, and sweep slowly along the valleys of the upper ward, blasting the harvest wherever they come; while the opener country below, perhaps escapes, and the corn ripens slowly to a tolerable harvest. Such frosts are said to be more frequent these last 30 years than formerly, and particularly since 1782. The narrower the valleys, their effects are more severely felt; so that among the thick clustered hills, near the upper extremity of the county, tillage is almost abandoned.

SECT. 5.—*Minerals.*

As the bowels of the earth are sometimes not less productive than its soil, and contribute considerably to the value of the land; and as the working of mines has important effects on the culture of the surface, some account of the mineral strata seems to be entitled to a place in this report.

Passing the earthy substances, which lie immediately under the soil, the first thing which attracts attention is the rock. This is of three general classes, namely, the *Sand Stone*, or *Free Stone*,—*Lime*,—and the *Hard Rock*, known in this country by the name of *Whin*. Each of these is of several different qualities and appearances, and

may be ranked under various subdivisions; but it will not be necessary for the present purpose, to take up so much room in this report, as the mentioning of all these subdivisions would require.

From the lower extremity of the county upwards, to above the falls of the river, some kind of free stone is the most general rock; nevertheless, different ridges of whin run along through the heights, on both sides, appearing sometimes on the surface, by which these ridges may be traced from the rocky mountains downward, through the whole extent of the county. The free stone is continued probably through all the plainer parts of the country, but the regularity of the strata is frequently interrupted, and one edge sunk deep, while the other is raised. It is found all along the river and the streams which fall into it, frequently approaching near the surface, and is much used in building.

Lime lies in the same tract of country as the free stone, but is only found, near the surface, in places which are somewhat elevated, after the free stone, and many of the strata below it, to be after mentioned, have skirted out at the surface, and are no longer found. It is most frequent on the south side of the river, viz. in the parishes of Kilbride, Avondale, Glasford, Stonehouse, Lesmahagow, Douglas, and the higher part of Hamilton; on the north side it is found in Carnwath and Carlisle parishes. Both those kinds of rock lie in a position nearly horizontal.

The great body of whin rock is in the upper part of the county, standing in perpendicular columns or thin laminæ on edge. It is mostly so in the lower ridges; but there are instances of it lying horizontally, like the free stone and lime. It is of a close texture, and composed of very minute particles. Whether it be, as some have supposed, the lava of ancient volcanos, or whatever have been its origin, it differs widely in its nature from free stone; and this difference may probably be the cause of the difference in the fertility of the soil between the upper and lower

parts of the county, above noted. The most solid bodies, after they cease to increase, tend, less or more, towards dissolution. Even those hard rocks exfoliate; and wherever the decomposed matter lodges, its fertility is shown, by the deep verdure which arises; whereas reduced free stone shows no symptoms of fertility. It is reasonable therefore to expect, that the soil, with which different causes must have contributed to mix a great deal of the former, should be more fertile than that which has always a considerable mixture of the latter.

Under the free stone lies the coal, for which Clydesdale is celebrated. A number of thin strata, or seams, as they are generally called, of this valuable fossil, lie above that which is generally called, around the city of Glasgow, the *upper coal*; because it is the first that is found worth digging, to any extent. This stratum is composed entirely of what is called *rough coal* in Scotland, except a small part near the middle of it, of the kind called *splint*. 2dly, About 16 or 17 fathoms under this, lies the *ell coal*, so called, because it was first found of this thickness, but it is frequently from 4 to 6 feet thick. It is composed of two kinds, called *yolk* and *cherry coal*, with sometimes a parting of splint, and sometimes not. This is a fine caking coal, or what is called in England, a close burning coal, and is much esteemed for the blacksmith's forge. 3dly, At from 10 to 17 fathoms below the last, lies the seam, called the *main coal*, so called from its possessing all the good qualities found in any of the other strata in the county. It contains *rough coal*, *splint*, and *parrot*, or *jet coal*, and is preferred, by the consumers, to all the others, as the most profitable. Its thickness is from $3\frac{1}{2}$ to 9 feet. Sometimes a thin bed of stone is found about the middle of the seam, and the whole thickness is 10 feet. 4thly, About 13 or 14 fathoms lower, lies the *bump coal*. It consists of *yolk* and *rough coal*, with a thin parting of *splint*. In some places it is without the splint, and unworkable, being much interlaced with thin laminæ of stone, and a

kind of petrified black clay, called *blaise*. 5thly, Below the humph coal lies the *hard coal*, sometimes at 14 fathoms distant. It consists solely of splint and parrot coal, and is found to be the best in the county for the smelting of iron. It is also very good for family use. 6thly, At a fathom and one half lower, is found the *soft coal*, from 30 inches to 6 feet thick. It is composed of the rough, yolk, and cherry coals, cakes much in burning, and is esteemed a good coal for the blacksmith's forge. 7thly, About 13 or 14 fathoms below this, lies a coal, called, about Glasgow, the *four milk coal*. As it burns slowly, and affords but a weak heat, it is what the miners call a lean coal, and has therefore been but little wrought. There are a number of thin seams of coal under the four milk coal, all of a lean quality, and generally much interlaced with laminae of stone, blaise, or shiver. Under the last mentioned have been found several strata of excellent lime; and more of the thin seams of coal again have been discovered under the lime; but all of them, which have yet been tried, are of a lean quality. The lime found near the surface, on the elevated grounds, is supposed to be a continuation of some one or other of the last mentioned strata found under the coal, which, in the course of their natural rise, have come within reach, in the places where the superincumbent strata of coal, and all its accompanying fossils, did not exist; as lime, worth the working, has never yet been discovered above those coal strata, nor in any place till after all the valuable known seams of coal had skirted out at the surface: and any coal, which has been found under the surface lime, is of the same lean quality with that which lies under the deep buried strata of lime.

The above is the number and order of the coal strata, every where along the Clyde, where they are entire. However, this is not always the case. All the mineral strata lie inclining towards the river on both sides, generally somewhat obliquely, and with various degrees and directions of declivity, rising, as they recede from it, till they

skirt, or, as it is expressed by miners, crop out, one after another; so that the first coal which is found in some places, is perhaps the third or fourth in the above mentioned order. These are distinguished by the name of the Clyde strata, or seams of coal, and not only lie along the sides of that river, through all the plain country, but branch out less or more along the principal streams, on some of them to a great extent; lying in the thinly inhabited parts, almost untouched, and affording the public the prospect of an almost inexhaustible fund of fuel, whenever the projected canal shall take place. Besides these, there are other seams of coal in the county, of a somewhat different nature. In the parish of Shotts, a fine yolk coal is wrought, resembling the coal found upon the sides of the Forth, and supposed to be a continuation of one of the same strata. Upon the sides of the Douglas river are extensive coalfies, which supply some of the more southerly provinces, where this fuel is wanting. The coal here is also similar to that on the Forth. On the S. W. boundary of the county is coal of the same quality with that wrought on the coast of Ayrshire. It crops out at the surface about the middle of Avondale parish.

There are still some other variations in the coal strata, which merit attention. Near the northern boundary of the county, a species is found, distinguished by the name of the *blind coal*, from its burning with intense heat without flame. This must no doubt have been deprived of its fixed air, by means of subterraneous fire. It is used for the same purposes as coke, and even preferred to coke artificially made, its effluvia being still less offensive. The blind coal is always found under a covering of horizontal whin; and when the same seam is traced, till it comes under the free stone rock, its qualities are entirely changed, and it becomes, in every respect, the common pit coal *. Another species of coal, the qualities of which are directly

* The blind coal found in Ayrshire, in the neighbourhood of Kilmarnock, is said not to be covered with whin, but schistus.

opposite to those of the last, is found in different parts of the county; it is here called the *candle coal*, or *light coal*, and is said to be the parrot or jet coal of the third seam, in the above enumeration, divested of the other kinds which accompany it, when the seam is complete. But when this is found alone, it seems to be still more exquisitely inflammable; it takes flame the moment it is brought in contact with the fire, and a small fragment of it may be carried about in the hand, like a flambeau, and continue for a long time to give a vivid light.

Iron is another mineral which abounds in this county. It is got only in a petrified state, what is called the ore not having yet been discovered, in such quantities, as to attract the attention of the miner. The iron stone is either found in beds of unconnected balls, or in a continuous rocky stratum. The balls are the richest. Iron stone is found in the same tract of country as the coal, and is the constant concomitant of that fossil, many beds lying between the different seams of coal; and, it is said, the best lies over the fifth seam, called the hard coal. Works have been established, for extracting iron, in three different places of the county. Although none of them yet have made malleable iron, the metal is not only extracted in its first manufactured state, called pig iron, but moulded into various forms for many different purposes*.

Among the mountains, near the southern extremity of the county, are the well known lead mines belonging to the Right Hon. the Earl of Hopetoun. In the same neighbourhood, a vein of copper ore was found, and some attempts made to work it, but without success. Here also a vein of antimony has been lately discovered; how it may turn out is not yet known. There are abundant quarries of excellent slate among these mountains; but the distance from the populous parts of the country is so great, there is no encouragement to work them to any considerable extent.

* At one of the iron works, some progress towards making malleable iron has been made. A forge is erected, and the iron brought to that stage called *blooms*.

Lime is used either as manure for the land, for the purposes of building, or as a flux in the smelting of iron. Two hundred and sixty labourers are employed in the different lime quarries, and lime is raised annually to the value of about 12,500*l*. About 2000 people are employed about the coal mines, and the quantity of coals produced annually, is about 765,000 tons: 100,000 tons of these are exported down the river, and eastward along the canal; 36,000 tons are consumed in the iron works; a quantity, which cannot be ascertained, goes away by land carriage, to other counties; the rest are consumed either in the other manufactures of the county, or for family use. The three iron works employ, in mining iron stone, and extracting the metal, about 500 hands, and produce about 3,600 tons of pig iron annually. The produce of the lead mines is different, in different years, varying from 18,000 to 50,000 bars of lead, according to the success of the discovery. The number of inhabitants in the village of Leadhills, is from 1000 to 1300, all of them either actually employed in the mines, or depending on the produce of them for support.

Thus the labour of about 4000 * people in the mines of this county, produces the following revenue:

Lime,	-	-	-	-	-	-	<i>L.</i> 12,500
765,000 tons of coals, at 4 <i>s.</i> per ton,	-	-	-	-	-	-	153,000
3,600 tons of pig iron, at 6 <i>l.</i> 10 <i>s.</i> per ton,	-	-	-	-	-	-	23,400
34,000 bars of lead, supposing the average	-	-	-	-	-	-	.
between the extremes, at 1 <i>l.</i> per bar,	-	-	-	-	-	-	34,000
							<i>L.</i> 222,900

SECT. 6.—*Water.*

There are a great many lakes in different parts of the county, none of which are so remarkable for extent, or any

* Besides the ordinary miners and workers at furnaces, &c. a number of other people are incidentally employed, such as, artificers, in making machinery, labourers, upon discoveries and other extra works, carters, in bringing materials to hand, &c.

circumstance attending them, as to merit a particular description; and an enumeration of the whole would be tedious and uninteresting. All of them contain some kinds of fish, such as trout, pike, or perch, &c. and are sometimes resorted to by anglers; but the quantity of food thus obtained is inconsiderable.

The Clyde and its tributary streams make the principal figure under the article of water. The main source of the river rises in the ridge of mountains which separate the county from that of Dumfries. It is there called the Daer, and flows for several miles under that name, till it is joined by a little brook, called the Clyde, and from thence downward, has always the name of the Clyde. The principal streams, by which it is joined in its course, are the Denintan, the Douglas, the Nethan, the Avon, and the West Calder, on the south side; the Medwain, the Moufe, the south and north Calders, and the Kelvin, which divides the county from Dumbartonshire, on the north side.

The river is navigable only to Glasgow. After which, besides a number of corn and other mills, it drives the machinery of two large cotton spinning works, at Lanark and Blantire. In great rains, particularly these which come from the S. E., it is sometimes swoln to a great height, and does considerable damage, more especially in Autumn, when the crops on the valleys by the river side are swept away, or much injured. The highest land flood remembered was that of the 12th of March 1782, when the river rose from 16 to 24 feet above the level of low water, according to the expansion or contraction of the banks in different places. In some places, the valleys have lately been fenced against inundations, by sloping banks of earth faced with grassy turf.

Most kinds of fish, which are found in the other rivers in Scotland, are also found in the Clyde, particularly the salmon. But though the river, from the foot of the lowest fall to Glasgow, runs, for about 20 miles, mostly on a bed of fine gravel, abounding with shoals and proper spawning

places for that fish, and the small rivers also affording many places for the same purpose; there are perhaps few rivers of the same size less stocked with salmon. This is probably owing to the populousness of the country. Since the more numerous the population, there is likely to be the more people, in proportion to the number of fish, disposed to destroy them, at improper seasons, and consequently the destruction is greater. The fish are not only improperly and wastefully destroyed at the time of spawning, when many thousands perish at one blow, but through the Spring and Summer, numbers of thoughtless people swarm along the sides of the river, angling, and kill more fry, at three or four inches long, in one day, than all the grown fish caught in a season. It is probable that, if this waste could be checked, the river would soon become a considerable source of food and revenue to the inhabitants. The proprietors of the fisheries on the Tweed, have entered into an association for improving them, by preventing all fishing at improper seasons, which, it is said, has had a very good effect. If all concerned in the fisheries of the Clyde would concur in adopting similar measures, and not only put a stop to all illegal fishing, but abstain themselves, for a year or two, from the most severe use of their rights, such as taking salmon in draught nets and cruives, it is probable the river would yield twenty times the quantity of fish which it does at present.

CHAPTER II.

STATE OF PROPERTY.

THE valuation of the yearly rent of this county, in Scots money, established by the treaty of Union between the two ancient kingdoms, as a rule by which the land tax and other assessments are proportioned, is as follows:

1	Carluke parish,	L. 6001	14	3
2	Lanark,	4217	9	10
3	Carstairs,	2150	0	0
4	Carnwath,	4978	19	4
5	Dunfyre,	1450	0	0
6	Delphinton,	850	0	0
7	Walston,	1233	0	0
8	Biggar,	3323	6	6
9	Liberton,	2501	8	0
10	Lamington,	2600	0	0
11	Coulter,	1600	0	2
12	Crawford,	5813	11	4
13	Crawfordjohn,	2360	6	8
14	Douglas,	5100	6	5
15	Roberton and Wistown, united,	2066	6	8
16	Simontoun,	838	0	0
17	Covington,	1333	0	0
18	Pettinain,	1570	0	8
19	Carmichael,	2246	7	4
20	Lefmahagow,	9907	0	0
21	Dalserf,	3320	0	0
22	Stonehouse,	2721	1	4
23	Glasford,	2653	3	10
24	Avondale,	7656	14	2
25	Hamilton,	9389	7	5
26	Blantyre,	1684	11	4
27	Kilbryde,	7679	1	10

Carry over, L. 97,244 17 1

OF CLYDESDALE.

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	Brought forward,	L. 97,244	17	1
28	Shotts,	6558	0	10
29	Dalziel,	1232	19	10
30	Cambusnethan,	5400	2	0
31	Bothwell,	7389	16	4
32	Cambuslang,	3235	17	10
33	Old Monkland,	6481	9	10
34	New Monkland,	6821	18	4
35	Rutherglen,	1200	0	0
36	Part of Cathcart,	925	0	0
37	Carmunnock,	1650	10	0
38	Govan,	4702	18	7
39	Barony of Glasgow,	13002	9	6
40	Calder,	6272	16	8

Total, L. 162,118 16 10

SECT. I.—*Estates and their Management.*

The property of the above is divided in the following manner :

- 1st, The most considerable land proprietors, who hold estates, the valuation of the least of which is upwards of 2000 l., are 11 in number, and the amount of their valuation is L. 48,374 0 0
- 2^d, The proprietors, who hold estates valued from 2000 l. to 1000 l., are 15 in number, and the amount of their valuation is 19,433 3 8
- 3^d, There are 39 proprietors, who hold estates valued at between 1000 l. and 400 l., and their valuation amounts to 24,598 11 0
- 4th, There are 138 proprietors holding lands valued from 400 l. to 100 l., whose valuation amounts to 24,008 9 6

Carry over, L. 116,414 4 2

AGRICULTURAL SURVEY

	Brought forward,	L. 116,414	4	1
5th,	Those who hold properties below the valuation of 100 l. are very numerous, being near to 900, and the whole of their valuation is		35,652	6 0
6th,	The lands belonging to burghs, and other societies and bodies corporate, or dedicated to the support of hospitals, &c., the valuation of which amounts to		10,052	6 8
		Total,	L. 162,118	16 10

The lands comprehended under the three first classes of the above enumeration, are generally either the property of families of a considerable standing in the county, or are parts of the estates of some of the great landholders of the neighbouring counties, and being for the most part under entail, remain in the possession of the same race of proprietors, while that race continues. This, however, is not universally the case: some are free of entail, and lands to a considerable value, included in these classes, have been lately in the market.

The lands comprehended in the fourth and fifth classes are more seldom under entail, and do not often continue many ages in the same family; particularly in the more populous parts of the county, where the wealth gained by commerce or manufacture is frequently laid out in the purchase of land; and the buyer and seller exchange employments.

Management.—Upwards of three-fourths of the surface extent of the county is the property of great landholders. Those who have the greatest part of their estates within this county, have country residences in it, which they generally occupy at least for a part of the year. Part of the lands round their habitations is cultivated under their direction; and much of it has been greatly improved, in the

course of the last 40 years. Many have extended their improvements still wider, especially in sheltering and adorning their estates, by inclosing and planting. One gentleman, Andrew Stirling, Esq. of Drumpellier, who, by purchases mostly recent, has become a great landholder, has highly distinguished himself as an improver. Bred in the commercial line, he has carried the enterprising spirit of that profession into all his transactions as a landholder; and though his purchases, probably, were chiefly made with a view to coal, in the discovery and working of which he has been very successful, he has been no less attentive to the improvement of the surface, and, by a well conducted course of industry, has given such an addition of fertility to an extensive tract, that a person who had not seen it for 20 years, if brought on it now, would scarcely believe it was the same country. Others might be signalized on the same account; such as Major Gen. Sir James Stewart Denholm of Coltness, who, by uncommon exertions, has made valuable improvements on a considerable extent of land, naturally very unpromising. The same may be said of Walter Campbel of Shawfield, Esq. But the business of this work is to give a general description of the state of the county, rather than to celebrate the conduct of individuals; and it is hoped, that what is said of the gentlemen mentioned, will not be supposed to depreciate the merits of those who are not.

A considerable extent of inclosed land on the different estates is kept mostly in grass, and let out from year to year in pasture, it being broken up only for a few crops of corn, at distant periods, and again sown out with grass seeds. But the greatest part is rented upon leases to husbandmen; and the right of possession is secured to them and their heirs by an old statute, although the land should change its proprietor, so long as the lease lasts.

The proprietors of small estates, such as those of the fifth, and many of those of the fourth class, frequently cultivate the whole or a considerable part of their own lands; and

much of the improvement of the county is owing to their efforts and example; so that a person passing through it has no difficulty of distinguishing those parts which are divided into small properties, from those which are not.

SECT. 2.—*Tenures.*

There is no instance, known to the writer, of lands being held, in this county, by any other tenure than that which is common to Scotland, by the custom of which the feudal system is still followed in the conveyance of landed property. According to this system, the sovereign is understood to be the sole lord of all the soil, minerals, and waters, possessed by his subjects. From him alone, therefore, the legal right of enjoying the property of land is supposed to be derived; and certain annual acknowledgements are due to him in return *. This right must be renewed upon every succession, whether of an heir or a purchaser, and a fixed fine paid. The landholder, thus invested by royal charter, is possessed of a certain emanation of the same sovereignty proportioned to the extent of his domains †, and can give charters to others, to hold such parts of them of him, in the same manner as he holds of the sovereign, and upon such conditions as he thinks proper; and these again can parcel out what they have thus acquired, in the same manner; and so on. But it ought here to be understood, that when lands are sold, the purchaser may either hold of the feller, or of the person of whom the feller held, according to the agreement between the parties.

In all cases, he who conveys is called the *superior*, and those who receive the conveyance the *vassals*. The annual quit-rent paid by the vassal to the superior is called *feu* :

* Some lands are held of the heir-apparent of the crown, but the nature of the tenure is the same.

† It having been supposed that the authority which the barons had over their vassals, had, in the rebellion 1745, brought numbers to the field against government, contrary to their inclination, an act of parliament passed in the year 1748, which, without overturning the feudal system, broke its force, and reduced this deputed sovereignty to a shadow.

and the fines upon successions *casualties*. Lands held by charters immediately from the sovereign, are called *freeholds*; and those conveyed by subject superiors, *base holdings*. Those only who hold their lands by the first kind of tenure, can be electors of a representative of the county in the house of commons; and except only in a few instances of charters of an old date, to which this right is specially annexed*, the extent of valuation must be 400 l., to give the qualification for this privilege. As noblemen who, either sitting or being represented in the upper house, are excluded from interfering in the elections of the commons, hold lands, in this county, to the amount of 34,000 l. of valuation, and as those of the fourth, fifth, and sixth classes, with all the base holdings which may be in the three first classes, are also out of the question, neither the number of electors, nor the land they represent, can be considerable.

The unwieldy and artificial manner of securing and transferring landed property, according to the feudal system, as above described; the frequent renewal and repetition of deeds and writings of different names and distinctions; and all the various formalities requisite, have rendered the aid of men learned in the law indispensable. The employment of these increasing as the commerce and wealth of the country increased, has occasioned an increase of their numbers: and the increase of numbers, again, has whetted their ingenuity to enlarge the employment, in which they have been abundantly successful. They are now become a powerful corporation, whose head is in the capital, and its members extended over the kingdom. Having, by such means, accompanied with great professional habits of industry and acuteness, become necessary on all occasions, they come in with the proprietors and cultivators of land, for a goodly share of the produce, without either directing the improvements or assisting the labours of cultivation.

* Called *Retours* on a forty shillings land of old extent.

CHAPTER III,

BUILDINGS.

THE buildings of a country, next to the land, are the least perishable wealth of the community; and while the latter furnishes support, the former affords shelter and accommodation to the inhabitants. It seems only in this view that buildings can obtain a part in a work of this nature: for though the magnificence of the buildings shows the wealth and grandeur of a people, and the symmetry of the architecture the refinement of their taste, neither of these have any connection with their skill and diligence in agriculture; nor is it to be expected, that the judgment of a plain agriculturist should be so much formed upon the models of Greece and Rome, as to give a critical description of them; and it is believed such a digression would not be expected, nor perhaps relished, by the most part of readers, if it were attempted. It will be sufficient, therefore, just to make mention of the different kinds of buildings; such as, 1st, Public buildings; 2^d, The residences of the opulent; 3^d, The houses occupied by those who are supported by their own labour; making, as we go along, what remarks may occur, which bear any relation to the cultivation of the country.

SECT. I.—*Public Buildings.*

Public buildings again may be divided into three classes, according to the purposes for which they are intended; 1st, For instruction and consultation; 2^d, For correction; 3^d, For the reception of the diseased and indigent.—The most considerable of the first class, are the buildings of the University of Glasgow, (in which a correspondent regrets that there is no institution for agricultural instruction) and the different churches, &c. in the county. St. Mungo's church, in Glasgow, is the only edifice of the ancient Gothic architecture, which remains entire and in use. The other churches in the county, of an old standing, are generally

very homely piles. The more modern ones are better built ; and many of them being furnished with spires, besides their principal purpose, diversify the scenery, and heighten the beauty of the country.

With respect to the second class of buildings, the different prisons, as well as all the other prisons of Britain, were certainly intended principally for correction ; but it has been much questioned how far they have answered this salutary purpose. A highly benevolent and enlightened character, the late celebrated Mr. Howard, stood forth, and recommended, as an amendment, to commit offenders to solitary confinement, where, in the privation of temptation and amusement, while they laboured for their support, serious thoughts might take place, and operate reformation. This has been tried in the city of Glasgow, an account of which is given in the following extract from Sir John Sinclair's Statistical Account of Scotland, Vol. V., page 514.

“ This institution was begun in the year 1789, when, in
“ order to try the effects of solitary confinement and labour, some buildings belonging to the city, and formerly
“ used as granaries, were fitted up as separate cells, for the
“ reception of persons guilty of crimes meriting such punishment. These have been gradually increased to the
“ number of 64, where the prisoners are kept separate
“ from one another, and employed in such labour as they
“ can perform, under the management of a keeper, and
“ under the direction of a committee of council, who inquire into the keeper's management, &c. The members
“ of the town council, also, in rotation, are appointed to
“ visit, not only this, but the prisons and cells near the hospital, once every week, and report whatever appears to
“ them to be proper either to be rectified or altered. The
“ keeper has a record of the sentences on which each prisoner is confined—keeps an exact account of the wages
“ of their labour, and after defraying the expence of their
“ maintenance, the surplus is paid to them, when the period of their confinement expires ; and some have receiv-

“ ed from 5 l. to 7 l. Experience in this, and other great
 “ towns where this institution has been established, has
 “ demonstrated, that, of all the species of punishment for
 “ offenders of a certain description, solitary confinement
 “ and labour is not only the most humane, but the best
 “ calculated to answer one great end of punishment, the
 “ amendment of the offender.” The magistrates and council have since been enabled, by the assistance of some benevolent donations, to erect buildings more completely adapted to the ends proposed.

Institutions of this kind, on a smaller scale, established in the different parishes, particularly of those parts of the county, where the number of inhabitants is much increased by the mixture of people employed in the great manufactories, would be much for the advantage of that part of the society who are engaged in the cultivation of the soil; and at the same time, if the experience above mentioned may be relied on, be a great benefit to offending individuals, as well as to the manufactures in which they were employed. There is no kind of property so much exposed to pillage as that of the husbandman; and by an unfortunate prejudice, which too generally prevails, there is none, against the pillaging of which fewer scruples are entertained. The prevalent manufactures give employment to numbers of young people, whose parents, perhaps, were neither qualified nor disposed to store their minds with moral instruction. These are, by the profit of their labour, rendered independent, while they are incapable of the innocent enjoyment of freedom. By such, the practice of the social duties is too frequently not only neglected, but made the subject of sport and ridicule—the dissolution of manners thus extended—and idleness and licentiousness kept in countenance and encouraged. The violation of property, therefore, when it can be committed with any chance of impunity, is little regarded, and the produce of a neighbour's field seems almost to be thought lawful prize: so that if the corruption of manners spread with as great rapidity for a dozen of years

to come, as it has done in the dozen last past, it is difficult to conceive how the husbandman can be protected in his rights, or be allowed to pursue his employment with comfort. As those giddy people, by whom the depredations on the fields are most commonly committed, by the idleness such practices induce, injure their own interest as much as that of others, it is the duty of all ranks to endeavour to put a stop to these flagitious practices. By the judicious use of a few cells, excluded from all communication, and from the view of all amusing objects, and provided with the implements of different artificers, erected in the most populous parishes, these depredations might perhaps be checked; and a number of thoughtless young people, not yet hardened in vice, whom a ferment of blood, unrestrained by proper habits, hurries into crimes, be brought to a sense of propriety, and become useful members of society.

The public is so little accustomed to sympathise with many of the hardships peculiar to husbandmen, that probably the offences above hinted will be thought too trivial for these serious animadversions. But it will not surely be denied, that, as all are interested in the produce of the earth, which is committed to the charge of husbandmen, whatsoever tends to waste and destroy it, or interrupts and discourages the means used to augment its quantity, is of a nature the most generally injurious: and, therefore, the cultivators of land have at least as strong a claim to public protection as any other class. But supposing the cause of husbandmen out of the question, and any offence committed against them ever so trifling, the public should be reminded, that bad habit is the cause of great offence; and those who begin with plundering the fields will scarcely stop there. An eminent French author observes, "*Les mœurs sont nonseulement le tableau vivant de l'état de la société; mais en sont encore le ressort principal.*" And again, "*Où les mœurs regnent, les loix les plus simple suffisent.*" Since manners are of such importance, it is surely proper to begin in time to correct them, where they are wrong.

That the advancement of manufacture, while it promotes the prosperity, destroys the morals of a people, is but a vague indiscriminating observation, calculated to inspire a groundless despair and indifference for the concerns of the public. That superfluity of wealth, which has been considered as one great origin of dissolute manners, cannot descend to the great mass of the people: nor can the exercise of any branch of industry, of itself, corrupt the morals of the person who earns his livelihood by it. The visible declension of morals cannot, therefore, be solely attributed to the advancement of manufacture: nor does it appear to be a very romantic hope, that, if the attention to the subject were equal to the interest which people of all ranks have in it, such a degree of decency and propriety of manners might long be preserved, among the body of the people, as the comfortable existence of society absolutely requires: and surely no means suited to accomplish so valuable an end ought to be neglected.

Of the third class of public buildings there are several in this county, both for

“ The young who labour and the old who rest;”

an enumeration of which, it is believed, would be needless. What is called the Poor's House in Glasgow, and the Infirmary lately built there by public contribution, for the reception and cure of the sick and wounded, are the most prominent. Were it convenient, here, to give an account of the charitable contributions in favour of these institutions—of the attention paid, and the wise measures pursued, by societies and individuals, in conducting them—of the numbers of helpless and diseased people entertained, and the benefits they have received, it would do honour to the humanity and liberality of the inhabitants, particularly those of the present age, by whom so many additions and improvements have been made.

SECT. 2.—*The Residences of the Opulent.*

Besides the large buildings in towns for the accommodation of the opulent, excepting in the most elevated parts of the county, where the situation is too bleak and forbidding, the face of the country is finely interspersed with the seats of the principal land-holders, or the villas of the wealthy merchants, manufacturers, &c. The attention which has been generally paid to shelter and adorn the grounds around these, has contributed greatly to the beauty, and also to the fertility, of the country; gardening, purely ornamental, having hitherto abstracted but little land from the main use of producing food either by corn or pasturage.

SECT. 3.—*The Houses occupied by those who are supported by their own Labour.*

Among these may be ranked the houses of the proprietors of the fifth class, in the enumeration contained in the last chapter, and a part of those of the fourth: for though the occupants of these derive a part of their income from their land rent, they depend still more on their own industry in the cultivation. The most part of these do not differ greatly from the better sort of farm houses occupied by tenants. The farm houses and offices have been much improved of late years: in general, however, they are not so comfortable, nor so well adapted to all the purposes of agricultural improvement, as they ought to be. It is not necessary, indeed, here, to have the offices so extensive as in places where the crop is stored within doors; it being the general opinion that both corn and hay are best preserved in the open air; and for that reason, no hay, and only that part of the corn which is intended to be first threshed out, is stored in the barn; but there is a great want of sheds and convenient straw yards for young cattle, &c. The high price of slates, and the distant land carriage to many parts of the county, has much discouraged the use of them,

which is also a disadvantage to husbandry, as thatched roofs give great harbour to vermin, and the covering of so many of them, at the end of every short period, with straw, consumes a great deal of what would be better bestowed in littering live stock, and making manure, an article which, important as it is, cannot be otherwise procured in many places distant from towns. There are, it is true, many tiles manufactured and used in the county; but when that manufacture was first begun, the tiles were of a bad quality, and those who used them had cause to repent it, which deterred others from following the example; so that, though great improvement has been since made in the manufacture of tiles, they are not yet very generally used for covering farm houses. As convenient accommodation is better understood, and more eagerly desired than heretofore, and as some of the most considerable landholders are disposed to make such additions and amendments to the farm houses as shall be required, on reasonable terms, it may be expected that, as leases fall, much improvement will be made in this article.

It is in vain to say any thing of the ancient cottages of the county, the former nurseries of field labourers; for they may be said to be now no more; as the few scattered ones which still remain can scarcely be called an exception. It having, for a long time, been the custom of this county for farmers to keep only unmarried servants, who are lodged and fed in the house, for the execution of agricultural labour, the cottages on the different farms have dropt gradually into ruins, and been removed; and the small tenements being mostly swallowed up in the larger farms, the cottagers and the farm servants, when they marry and settle, withdraw from their rural habitations to towns and larger villages, to which the increase of employment also invites them; and their progeny, who, formerly were from their infancy habituated to the labours of the field, are mostly occupied in some branch of manufacture: so that the means by which the necessary supply of labourers

in husbandry used to be obtained is in some measure cut off.

This change has been pathetically bewailed by persons of feeling hearts and warm imaginations, who, being charmed with the simplicity of rural life, have painted the sequestered cottages as the calm retreats of innocence and virtue, while the disciples of a more rigid school have justified and extolled the measure of driving the superfluous inhabitants from the country, to follow industry in towns. It is probable that neither the former had very accurately considered the subject of their lamentations, nor the latter made proper calculations how many inhabitants any district of the country ought to contain, before it became necessary to drive any of them away. The diminution of cottages in this county does not, indeed, appear to have proceeded from any premeditated plan of economy, but from fortuitous causes. But certain it is, whether the scarcity of field labourers be ascribed chiefly to the prospect of superior ease and comfort to which a growing manufacture invites, or partly to the little attention paid to preserve those in their former habits and situation, who might have been willing to remain, it has been much felt for some years past, and still seems to be increasing. No doubt, the war, which has carried the flower of our peasantry to the army, has also contributed. Many can never return; those who do will hardly bring all their former industry and activity along with them. But if the capital employed in agriculture were equal to what the complete cultivation of the county would require, many more hands would be wanted, while, in the mean time, the former means by which the usual recruit was obtained, is cut off by the demolition of cottages; and it still remains to be seen whether or not Dr. Goldsmith's famous distich,

"But a bold peasantry, their country's pride,

"When once destroyed, can never be supplied,"

be as just as it is poetical.

The county, however, is supplied with a new set of cottages. Several landholders, partly perhaps to prevent the depopulation of the country, and partly for their own emolument, have let out, either in feu or long leases, spots of ground, for houses and little gardens, generally upon the sides of the public roads. Upon these many little handsome cabins have been erected, which, accompanied with neatly dressed gardens, supplied with pot-herbs, and frequently ornamented with a few flowers, have a very pleasant effect. These are mostly clustered into villages, some of which are become pretty populous. But though many of them are occupied by the inhabitants of the old cottages, or by farm servants when they marry, most of the children betake themselves to some kind of manufacture; and, in a softer life, lose both the relish for, and the power of performing, the more rugged labours of the field.

Farm houses are built at first by the landlord, and the tenant is bound to keep them in repair during the time of his lease, and to leave them in good condition at the expiry of it. Every successor is bound in the same manner. Of late, some landlords contract to make the farm houses of a certain money value at the commencement of the lease, and the tenant to leave them of the same value at the end of it, or to pay the deficiency, as the same shall be estimated by men of judgment: on the other hand, if the tenant, for his own conveniency, shall have made the houses of greater value than they were at the first, the landlord pays to him the increased value. The proprietors of cottages bear the expence of all the necessary repairs (glass excepted), unless there be a particular agreement to the contrary.

CHAPTER IV.

MODE OF OCCUPATION.

THE face of this county being greatly diversified, the mode of occupation is different in different parts. The mountainous district, at the head of it, is occupied mostly with flocks of sheep: upon the ridges on the E. and W. sides, where the ground is marshy, and less proper for sheep, and the exposure too bleak to encourage the cultivation of corn, cattle are mostly pastured, and those generally milch cows and their young, many of which are reared; a small quantity of corn only being cultivated, principally for the sake of winter provender: the less rugged and less exposed parts are more occupied in the culture of corn, &c.

SECT. I.—*Size of Farms.—Character of Farmers.*

Every parish was formerly divided into ploughgates, each of which consisted of from 70 to 120 acres of arable land. One of these, for the most part, made one farm. In some cases, a ploughgate was divided between two farmers; and there were sometimes small tenements annexed to ploughgates, not more than a fourth, or, as it was called, a horse-gang, having a house, and occupied by a subtenant. The greatest part of the farms are still moderate, renting from 30 l. to 150 l. yearly: but of late some farmers have obtained larger possession, some renting from 200 l. to 600 l. In the sheep pastures, the farms are very extensive.

The husbandmen of this county are hardy, active, and laborious, well qualified to struggle with the difficulties of soil and climate above described, and equally frugal and economical. Fortunately, to use the words of a late celebrated satirist, they are "not overburdened with unwieldy knowledge." Instead of pretending to tear away the veil, under which nature has concealed many of her important operations, they are attentive to acquire experience, by observing what passes under their notice. Having now,

in a great measure, shaken off those fetters, in which prejudice holds husbandmen, perhaps, faster and longer than any other set of men, they communicate with one another, and mutually learn such practices as tend to improvement. Such in general is their professional character.

Their moral character is, probably, nearly the same with that of the inhabitants of other districts in similar circumstances. Men of acute feelings who, in their commerce with the busy world, have been hurt with the insincerity and knavery of mankind, contrasting the open unstudied address of countrymen with the artificial manners practised in the crowded walks of life, have represented the country as the sole abode of innocence, and countrymen as the most virtuous of the human race. This fair portrait of rural manners, however, has not been suffered to pass unbedaubed. Much ingenuity has been employed, and much pretended sagacity displayed, in drawing aside the countryman's garb of simplicity, and showing the craft, hypocrisy, sordid avarice, &c., supposed to be concealed under it. The failings of humanity, no doubt, will accompany man, in whatever situation he is placed: but when it is considered in how little estimation husbandmen are held, it is less a wonder that vices are to be found among them, than that there are so few. The spruce citizens laugh at their rustic, homely appearance, fly in a rage when the price of country commodities are raised in proportion to the demand, and enter into combinations to beat them down. If farmers become rich by their industry and good fortune, they are accused of extortion, of storing up their corn, or sending it to foreign markets, to starve the poor; if they are unfortunate, they are despised. The haughty lordling, who should be their patron and protector, regards them only as an inferior race, formed to toil for his enjoyment; and the family who have run a lease of industry and good management, are dismissed at the end of it, if a stranger offers a little more rent. Against such an host of depression, the insulated husbandman has no shelter, but silent dissimula-

tion, and it is not surprising that he should sometimes have recourse to it.

This stricture is not meant to extend to all. The conduct of the rational and the discerning of every rank will be very different. But still such prejudices are too common; and the cultivators of the country do not seem to possess that respectability which the importance of their situation deserves. It is an observation not less true than trite, that self respect is one of the best guards against the commission of crimes; and that people will be more disposed to respect themselves, when they are respected by the world. It is a generous employment that of a husbandman: Let it be regarded as such, and the virtues congenial to it will be more conspicuous among its professors, and render them still more eminently useful to society.

The political character of husbandmen, one would have thought, should have made them the darlings of statesmen and politicians. Strongly attached to their native soil, and fully occupied in the diversified employment they find upon it, they neither have the disposition nor the leisure to enter into speculative disquisitions concerning government: and while the people engaged in manufacture are perpetually lifting up the heel against that administration which has bolstered up the sources of their support, neglected husbandmen remain peaceful and passive, except in extraordinary emergencies, when they stand forth to offer government such feeble assistance as they can bestow. The truth of this position will be best illustrated by studying the history of mobs, by which it will appear, that a thousand of these have risen in towns and populous manufacturing places, for one in the country; and in the few which have happened in the last, scarcely any person has been concerned, who deserved the name of cultivator, or was possessed of the habits naturally attached to that employment. *Pius quæstus, stabilissimusque, minimeque invidiosus; minimeque male cogitantes sunt, qui in eo studio occupati sunt.*

The religious character of the husbandmen of this coun-

ty, and, to speak more largely, of the generality of those in the kingdom, is a zealous adherence to the form of church government, and mode of religious worship, established by their ancestors at the reformation. Many, indeed, have withdrawn from the church, as now established; but it is because they apprehended that church had swerved from its original purity. The support of all the teachers, &c. of the different sects, has greatly increased the expence of public instruction, a considerable part of which is drawn from the cultivators of land: and it has been much doubted if the cause of real religion has been advanced in the same proportion. It is not convenient here to investigate the causes which has produced these religious schisms; but it may be justly regretted, that, amidst the various controversies upon abstruse and speculative points, the sublime morality, inculcated by the christian religion, so consonant to the state in which husbandmen are placed, and so well adapted to afford them consolation in all difficulties, should be so slightly regarded.

SECT. 2.—*Rent.*

The rent of land, in this county, is mostly paid in money, the old personal services, so oppressive to the farmers, and so unprofitable to landlords, being generally abolished. A few fowls are still exacted from the farmers of some estates, besides money rent; and the restriction to carry the corn to certain mills to be ground is still continued. But by this oats only is meant, which was and is still considered as the principal bread corn. This is a real grievance, not so much on account of the heavy exaction levied for the grinding, which is generally double, and sometimes triple, of what would be required at a mill to which the farmer was not bound, as the farmer, knowing the extent of this exaction, may be supposed to have laid his account with it, but being bound to carry the corn to be ground by a person, perhaps, neither whose skill nor honesty can be depended on, and from whom little civility is to be expected. Farmers

bound to a mill are also bound to carry mill-stones from the quarry, whatever be the distance, and to assist at repairing the mill, mill-dam, and mill-lead, when required. These are absurd servitudes, and ought certainly to be abolished. Some farmers are bound to pay the land-tax and other public burdens; but these payments are oftener made by the proprietor.

As some parts of the county differ widely from others, with respect to fertility, so also the rent of land is not less different. For many years past there have been instances of good land, which had been gaining fertility by lying long in pasture, letting for two or three crops of oats, at the rate of 7 l. or 8 l. per acre yearly; and within these three years some has been let as high as 11 l. Some rich land near towns, is let, for the course of a lease, at the rate of 5 l. and upwards, per acre; and there is arable land let not much above 3s. per acre. Pasture ground is rented from 3 l. to 8s. or 10s. per acre.

Upon the whole, the rent of land is certainly too high, since few instances are to be found of farmers, with the utmost industry and attention, improving their stock at the same rate with others in less laborious employments. The great rise on the price of provisions of all kinds, in the years 1795 and 1796, no doubt threw a great deal of money into their hands; but it was impossible this dearth could continue. While it did, the poorer sort were reduced to great straits; and if it had not been for the flourishing state of manufacture, many more would have been in the same condition. It is alarming to think in what state the country must have been, if manufactures had been at as low an ebb as they were in the year 1793. Many must have been reduced to starving, and the price of provisions fallen, for want of consumers capable to purchase, if something worse had not happened. It is neither to be wished nor expected, therefore, that the rent of land should be kept up, or raised by such means.

It is impossible to give an exact state of the whole land-

rent of the county, many of the statistical accounts of the parishes being silent on that head. In the report made in 1794, it was attempted to give a general idea of it, and though it was in part conjectural, it was probably not far from the truth. The same shall now be given here, allowing the reader to make what alteration he thinks proper for the difference of the times.

In the upper ward, the sheep pastures of Crawford will maintain a sheep for every two acres, and the rent paid per head is about 3s. In some of the more wet and barren moors, it will perhaps require three acres to maintain each sheep, and a farmer cannot afford to pay more than 1s. 6d. per head. The arable land, fertile as much of it is, with all the inconveniencies of climate, distance from market, and the many spots of poor land intermixed, which cannot be profitably improved, on account of the scarcity of manure, and other discouragements, does not perhaps yield of rent, on an average, above 8s. per acre. The moorish land of the middle ward, when the mooses above described are included, is still less valuable than that of the upper ward. The arable land, though from the circumstances of its situation, and the great improvements which have lately been made, some of it lets, at times, nearly as high as most land in Britain; yet there is a great proportion so sterile in its nature, and so unhappy in its exposure, that the average rent of the whole probably does not exceed 14s. per acre. The under ward, though not originally more fertile, on account of its situation in the neighbourhood of Glasgow is now more valuable. The average rent may be computed at 25s. per acre. The following is a kind of scheme of the county:

OF CLYDESDALE.

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UPPER WARD,		Acres.	Acres,
Moor pasture,	- -	185,000	
Woods,	- -	3,140	
Channels of rivers, brooks,			
roads, &c.	- -	2,060	
Orchards,	- -	70	
Arable and meadow,	-	76,490	
			266,769
MIDDLE WARD,			
Moors and coarse pasture,		66,000	
Woods,	- -	4,150	
Channels of rivers, sites of			
towns and villages, roads, &c.		1,300	
Orchards,	- -	130	
Arable,	- -	70,750	
			142,339
LOWER WARD,			
Woods and waste ground,		1,000	
Sites of towns, roads, &c.		1,500	
Arable,	- -	33,850	
			36,350
Total acres,			445,440

The yearly rent may stand thus:

UPPER WARD,		L. s. d.	
Pasture, 185,000 acres, at 1s.	L. 9,250		
Arable, 76,490 acres, at 8s.	30,596		
		39,846	0 0
MIDDLE WARD,			
Pasture, 66,000 acres, at 6d.	1,650		
Arable, 70,750 acres, at 14s.	49,525		
		51,175	0 0
LOWER WARD,			
Arable, 33,850 acres, at 25s.		42,312	10 0
Total rental,		L. 133,333	10 0

AGRICULTURAL SURVEY

SECT. 3.—*Tithes.*

There being nothing, relating to tithes, peculiar to this county, this article might be immediately dismissed. But as these reports may fall under the perusal of readers unacquainted with the customs of Scotland, it seems necessary that these customs should be explained; since this has not been done in the Mid-Lothian Report (the only one which the writer of this has seen), in which it was most likely to be expected. It was for this reason, that, in a former chapter, an attempt was made to explain the nature of Scots tenures; and, for the same reason, it may be proper to do the same with any similar article which may occur.

In Scotland, as well as the other countries of Europe, the Jewish law, Numb. xviii. 21. was adopted in making provision for the ministers of religion: but the tenth part of the produce of a barren land was little for supporting the numbers whom superstition, in the days of ignorance and idleness, induced to embrace holy orders. The clergy, however, in the influence which their sacred office gave them over the minds of the people, possessed, in superstitious times, abundant means of increasing their funds, of which they knew well how to avail themselves. While they directed others in the way to heaven, they accepted the reward of their pious labours in the goods of this world; and of these they had at last obtained a large share. Dr. Robertson, in his History of Scotland, says, "The Scottish clergy paid one half of every tax imposed upon land; and as there is no reason to think that, in that age, they would be loaded with an unequal share of the burden; we may conclude, that, by the time of the reformation, little less than one half of the property of the nation had fallen into the hands of a society, which is always acquiring, and can never lose." When the dawn of knowledge had somewhat dispelled the mist of superstition, and the bold truths, every where advanced, had battered down the bulwark of sanctity, with which the clergy and their

possessions were surrounded, their wealth became a tempting prize to the avidity of the laity, and they were hunted down for the sake of the spoils they possessed. The noble and retainers of the court, not only got hold of the greater part of their monasteries, castles, manors, and extensive landed property, but obtained grants from the crown of the tithes which had been originally destined for the support of religious institutions, with the reservation only of so much as should be necessary for the maintenance of a spiritual pastor in every parish; and a very little was, in those days, thought sufficient for this purpose. The other land proprietors, many of whom had been equally active in pulling down popery, complained loudly of this unequal distribution of the spoil. Charles I., who then sat on the throne, unable to govern, in those turbulent times, was willing to temporize; and having accepted the office of arbiter between the contending parties, decreed, that all those who had obtained grants of the tithes of any district, who were generally called titulars of teinds, should be obliged to sell, to the proprietors of the land, a right to as much of the tithes (commonly called teinds in Scotland) as was not exhausted in the maintenance of the parochial pastor, at the rate of nine years produce: and the proprietors, who wished to purchase, were authorized to institute a suit before a court, which had been erected for such purposes in the preceding reign, to obtain a judicial valuation of these teinds, and operate a sale*. Building and orchards are not comprehended in these valuations; and the proprietor is allowed a deduction for the expence he has recently laid out in improvements, such as inclosing, draining, &c.: so that it is only from negligence of proprietors, in not negotiating the purchases of teinds in time, that any tax has fallen on the industry employed in improving the land.

The tithes being thus wrested from the clergy, cultivators are left at full liberty to increase the fertility of the

* Instead of the tithes formerly levied in kind, a fifth part of the land-rent was declared to be the teind.

country, as far as possible, without being under the apprehension that those who have borne no part in the culture should come in for a share in the harvest. But the clergy, though no longer in possession of the teinds, are not left to a precarious subsistence. That austerity of manners and indifference about worldly enjoyments, which distinguished the apostles of the reformation in Scotland, was soon laid aside; and the clergy began to complain that their temporal interest had been much disregarded, in the revolution which had taken place. A court was therefore erected, as above said, the business of which is now done by the members of the supreme court, to take cognizance of their affairs: and to this court the ministers have applied for augmentations of their stipends, which has seldom been denied, when there were any teinds remaining unbestowed in the parish. Each minister has besides at least four acres of arable land, called the *Glebe*, and so much for pasture, with a house, called the *Manse*, offices and garden. The stipends of the different ministers, extracted from the Statistical Account of Scotland, are as follow:

OF CLYDESDALE.

26. 65

Parishes,	Money			Vidual at			Manse			Total.		
	Stipends.			ra. per peck.			and Glebe					
	L.	s.	d.	Chal.	B.	P.	L.	s.	d.	L.	s.	d.
Lanark,	76	8	8	6	2	0	15	0	0	169	16	8
Carnwath,	29	0	0	4	0	0	24	0	0	100	4	0
Dunfer,	100	0	0	0	0	0	0	0	0	100	0	0
Dolphinton,	46	0	0	0	0	0	10	0	0	56	0	0
Walton,	33	0	6	3	0	0	10	0	0	81	8	6
Biggar,	53	11	1	4	0	0	12	0	0	116	15	1
Liberton,	110	0	0	0	0	0	10	0	0	120	0	0
Lamington,	58	5	1	0	0	0	10	0	0	68	5	1
Coulter,	41	13	4	3	0	0	10	0	0	80	11	4
Crawford,	83	6	8	0	0	0	10	0	0	93	6	8
Douglas,	83	6	8	0	0	0	10	0	0	93	6	8
Symington,	55	11	1	0	0	0	10	0	0	61	11	1
Covington,	80	0	0	0	0	0	0	0	0	80	0	0
Pettinain,	7	0	0	8	5	0	18	0	0	131	8	0
Lefmahagow, 1st minister,	41	13	4	5	15	0	20	0	0	137	13	4
2d ditto,	63	17	9	1	0	0	7	0	0	83	13	9
Dalserf,	90	0	0	0	0	0	24	0	0	114	0	0
Stonehouse,	16	12	6	6	1	7	15	0	0	109	11	6
Glasford,	30	8	10	3	10	0	16	0	0	92	16	10
Avondale,	55	0	0	6	0	0	16	0	0	147	16	0
Ditto, assistant,	25	0	0	0	0	0	0	0	0	25	0	0
Hamilton, 1st minister,	41	13	4	8	0	0	40	0	0	184	1	4
2d ditto,	33	6	8	6	0	0	12	0	0	122	2	8
Blantire,	53	6	8	3	8	0	20	0	0	120	2	8
Kilbride,	0	0	0	12	0	0	20	0	0	173	12	0
Shotts,	140	0	0	0	0	0	0	0	0	140	0	0
Dalziel,	50	0	0	0	0	0	25	0	0	75	0	0
Cambusnethan,	130	0	0	0	0	0	20	0	0	150	0	0
Bothwel,	46	18	0	7	1	0	20	0	0	157	6	0
Cambuslang,	140	0	0	0	0	0	0	0	0	140	0	0
Old Monkland,	2	16	6	8	0	0	20	0	0	125	4	6
New Monkland,	0	0	0	8	8	0	18	0	0	126	16	0
Rutherglen,	0	0	0	9	3	14	18	0	0	136	6	6
Govan,	50	0	0	8	0	0	25	0	0	177	8	0
City of Glasgow, eight } ministers, each	165	0	0	0	0	0	0	0	0	1320	0	0
Barony of Glasgow,	165	0	0	0	0	0	0	0	0	165	0	0
Gorbals,	100	0	0	0	0	0	0	0	0	100	0	0
Calder,	0	0	0	8	0	0	15	0	0	117	8	0

L. 5593 12 2

Supposing the livings of the parishes of Carluke, Carstairs, Crawfordjohn, Robertson and Wiston, Carmichael, and Carmunnock, of which we have no account, to be about 100 l. each, inde, the whole

600 0 0

The annual expence for religious instruction will be

L. 6193 12 2

AGRICULTURAL SURVEY

And the support for the teachers of the different sectaries may perhaps amount to a fourth or fifth of the above.

SECT. 4.—*Poors Rates.*

Poors rates are imposed by an act of the Scots Privy Council, 11th August, 1692, which directs, that the heritors of a parish shall meet with the minister and members of the kirk session, who are jointly to make up a list of the indigent persons in the parish, and then impose an assessment for their maintenance, one half on heritors, in proportion to the valuation of their property, the other half on tenants and householders, according to their ability. Thus the people who pay the poors rates are both made the judges of the indigence of those who claim charity; and the imposers of the assessment for their relief; and this, no doubt, is the best guard, which could be well devised, against an exorbitant assessment or a prodigal distribution.

In the populous manufacturing parishes, where the proportion of needy persons is always greatest, it has been necessary to have recourse to this mode of supporting the poor. In the more thinly inhabited parts, the poor have hitherto been supported by the interest of money which has been mortified by pious persons, by the offerings at the church door of the people assembling to divine service on Sunday, by hiring out palls for funerals, &c., without having recourse to assessments.

SECT. 5.—*Leases.*

On sheep farms the leases are commonly short, as no process of improvement is carried on; on arable farms the most common length of lease is 19 years. In some cases, when the farmer undertakes extraordinary improvements, such as expensive draining, making and training up of fences, &c., the length of the lease is 31 years; and there are a few instances of still longer leases. The term at which a new tenant enters upon the possession of the land is Martinmas, but the houses and pasturage are retained by the former possessor till Whitsunday. Of late, the old te-

nant is bound to relinquish to the new one, half the grass grounds, and lodging for labouring servants and horses, at Candlemas. In some estates, the farmers are bound to follow a certain system of husbandry and rotation of crops; in some they are bound only to have no more than a certain proportion, such as a half, a third, or a fourth, of the farm in tillage crops annually; in others they are left more to their own discretion; but, in all, they are laid under certain rules, meant to prevent them from exhausting the farm towards the expiry of the lease.

SECT. 6.—*Expence and Profit.*

Not being possessed of the private books of expenditure kept by husbandmen, it is impossible to give a real account of agricultural expence, in any situation; but, though this could be done in some cases, the nature and extent is so much varied by variations of circumstances, it would give no fair general idea. It would be easy, indeed, to make out, with great seeming accuracy, a statement of the probable expence, in the conduct of a farm; but political arithmetic, at the best, is not much to be depended on; and, where the data are doubtful, must always be very fallacious. The expences attending agriculture are so much varied by contingencies, which the greatest skill and industry cannot command, that they will not yield to general computation. The unfortunate death of live stock has brought many a thriving husbandman to ruin: even the pricking of a horse's foot sometimes disappoints his projects, and greatly inflames his expence. While a propitious season forwards his labour, and diminishes his outlay, an unexpected turn of bad weather overturns what he has been doing; his labour is lost, and he must go over the same ground again, perhaps with less prospect of advantage. Upon the whole, the expence of cultivation, from causes, some of which have been already explained, and others will be traced out in the sequel, has of late been enormously increased; and when it is considered in all its branches, it seems surprising, notwithstanding the advantage of high prices which husbandmen have for

some years enjoyed, that the improvement of the country should go on as it does.

As the expence of cultivation cannot well be calculated, so neither can the profit. We can neither calculate how much corn the frost will blight, the wind will shake, or the rain will rot. We may safely assert, however, as has been already hinted, that the profit is not, in general, adequate to the stock and industry employed, or the toil and hardship undergone, in quest of it. Such comforts as farmers enjoy, and such savings as they have made, seem to arise chiefly from an unremitting parsimony, from a minute attention to the detail of their business, and a remarkable knack of making the most of every thing in which their interest is concerned; habits, which the high rents and accompanying difficulties have, no doubt, taught and confirmed. Fifty years ago, the farmers of this county lived, as a celebrated poet of our own country expresses it,

“ Like the gay birds that sung them to repose,

“ Content, and careless of to-morrow's fare.”

Their rents were low, and so was their ambition; and they jogged on in humble ease. But when the rising prosperity of the nation began to hold out superior prospects of advantage, they were, on a sudden, seized with a rage, which could scarcely have been expected to be found among them. They eagerly outbade one another for every farm, as leases fell, and raised, at the same time, the rents and the avidity of landholders to a great pitch. Such of the new lessees as were unequal to the task soon sank under it; but many have struggled through, and a body of men is now formed, very well adapted to their laborious employment. Such has been the advantage of the rapid rise of rents; but this has been much overbalanced by the effect it has had, first in diminishing the capital employed in agriculture, and next in retarding its natural and proper increase. Nevertheless, there is reason to hope that the present race of husbandmen, with a very moderate degree of countenance and encouragement, will gradually arrive at a situation fitted to bring the country to the greatest possible improvement.

CHAPTER V.

INCLOSING AND DRAINING, ARABLE AND GRASS GROUNDS,
IMPLEMENTS, &c.

IT is the universal opinion here, that the easiest and surest way of increasing the fertility of land, is to let it remain for a considerable time in pasture, so soon as it has been put in condition to bear abundance of grass; and that the richer it has been made by manure, when it was laid in grass, its fertility will increase the faster. At the same time, it is found, that land is rendered more productive, by taking it, at intervals, from pasture to tillage, by which the vegetable substances, accumulated on the surface, are incorporated with, and enrich the soil, tending also to open and separate its parts, when too dense and tenacious, and to give it additional mucilage to retain the moisture, when too open and dry. Hence it is that alternations of tillage and grass are now the general practice throughout the county, little land being kept long in a course of tillage, without being laid in grass, and none that is thought fit for tillage left in perpetual grass. The little swampy plains, among the eminences on both sides of the county, are the only instances of perpetual meadow.

For this reason, the articles in the title of this chapter, which, according to the plan given by the Board of Agriculture, should be the subject of four chapters, is comprehended in one. Inclosing is the basis of the present economy through the most of the county; draining and supporting of fences are parts of the husbandman's employment; alternate tillage and grass are the chief objects of his attention; and the implements of husbandry are the instruments with which his work is performed. In treating these subjects, most of the articles comprehended in Chapter XII. of the arrangement proposed by the Board, will be brought in, and make that head less necessary in the present work.

According to this plan, the present chapter will be divided into the following general sections, viz.

1st, Inclosing and draining.

2^d, Tillage, or cultivation, with the implements of husbandry used.

3^d, Manures, or substances applied to fertilize the soil.

4th, Plants cultivated, and rotation of crops.

5th, Grass grounds of all kinds, with the purposes to which they are applied.

Each of these will be branched out into as many articles as may be requisite for the illustration.

SECT. I.—*Inclosing and Draining.*

ART. I. *Inclosing.*—Inclosing is recommended and enforced by several old Scottish statutes, which, as they do not appear to have taken great effect, it will be needless to quote. It is appointed by statute in 1661, cap. 41., that adjacent proprietors shall be at equal expence, in making fences, with the proprietor inclosing his property along the march between them; and by statute the same year, cap. 17., and 1685, cap. 39., judges and magistrates are authorised to straight marches between conterminous properties, to make inclosing less inconvenient and expensive. These laws have been frequently resorted to, and greatly forwarded inclosing.

The advantages arising from inclosing seem not to have escaped the observation of the inhabitants of this county at an early period. The remains of mounds, probably made to divide the land kept in culture from that on which the cattle pastured, may still be traced in different parts. Even where they no longer exist, the memory of them is still preserved, through all the country, in the names of many places compounded of the word *dike*. How these dikes or fences were constructed, how far they answered the purpose, or why they were abandoned, is no longer known. It is certain the spontaneous growth of shrubs, which would tend to make them more defensible, is now ceased in places where it once prevailed. A few stone fences, of an

old date, here and there still remain. On the low grounds where shrubs thrive, there are a good many old inclosures, fenced with hedges composed of various kinds; and some of a considerable standing, fenced with the white thorn alone.

The spirit for inclosing, which seems for a long time to have been in a great measure suspended, revived about 50 years ago, and has increased, and proceeded with great perseverance ever since. There is scarcely any place where the land has been deemed improvable, and capable of bearing hedges, but some attempts towards inclosing have been made. The most common mode of inclosing is with ditches, pretty generally known by the name of clap ditches, having a row of white thorn plants laid in the face of the mound formed of the earth taken out of the ditch. Though one has continued to follow another in this practice, it has proved, on the whole, very unsuccessful. In fertile soils, the roots of weeds protected and fostered under the mound, perpetually put forth their shoots, and injure the young thorns. In clay soils, the argillaceous substance at the bottom, which is the bane of many kinds of plants, and of the white thorn as much as any, surrounding the roots of the young hedge, on all sides, as soon as they reach it, checks the progress of the plants; at the same time, the mound of dense earth excludes the influence of the sun and rain; and the hedge, which promised to grow at the first, becomes stunted and puny in a few years. Hence, except in a few places where the soil, bottom, and exposure, are uncommonly favourable, there are few hedges in the county defensible, without perpetual and expensive repairs with dead wood. The expence of making these ditches, with plants and a cocking of wood, is from 2s. to 2s. 6d. per fall, a measure of 18 feet 6 inches, used in the country. When it is considered to what extent inclosing has been carried, it will appear, there has been a great deal of money very unprofitably laid out. Some people now begin to be sensible of the general error, and, instead of clap ditches, make mounds solely of earth collected from the surface, faced up

with stone or green sod, mix the collected soil with manure, and plant the hedge on a border along the top. This seems to be the manner in which all the old hedges, that remained good, have been done. As the white thorn, though it makes a formidable hedge, when it thrives, makes but a poor figure in a barren soil and exposed situation, it is now common to plant a third or fourth part of beeches, intermixed with the thorns; the former being found to be a hardier, more thriving plant, than the latter, and consequently better adapted to shelter a stormy country, as well as to strengthen the fence. It is probable this may be a considerable improvement in inclosing; but there are often so many barren spots, from the out-skirting of the mineral strata, and the like, occur in the lines where it would be wished to draw fences, on which no plants can thrive, that inclosing can never be so general, or so sufficient as it ought to be, till stone walls be more in use. It is unfortunate that much of the soft stone found near the surface moulders in the air, through time, and is therefore less durable in fences. In the light soils of the upper ward, thorn hedges frequently fail for want of moisture. Here raised mounds would make the matter worse. In such cases, the best way of raising thorn hedges would probably be, to summer fallow the line on which the hedge was to be planted, about 10 feet wide, freeing it completely of the roots of weeds, and working a good quantity of dung into it. The edges of this might then be turned up towards the middle, in order to thicken the soil, and the hedge planted in the centre. Elm plants, which delight in a dry open soil, and submit very well to be dressed and pruned as a hedge, might be substituted in place of beeches. Hedges would perhaps succeed in this way, where they fail in clap dikes; but there are stripes running through this kind of soil as unfavourable as the out-skirting of the mineral strata. These are of dry sand and gravel for a considerable depth: They are called scalds by some of the English husbandmen. For such places there is perhaps no remedy but a dead fence.

ART. 2. *Draining*.—There is nothing of great consequence to be observed with respect to draining. In all the clay country, the great business is to carry off the surface water, which can only be done in open drains. The numerous ditches made for inclosing, already mentioned, though frequently not answering the intended purpose, are very useful conductors of water. The draining of clay ground is principally performed by the manner of laying out the ridges, which will be taken notice of under the following branch. Where larger receivers than the ordinary furrows are needed, it is thought the most eligible way to make the sides of them very much shelving, as recommended by the late Lord Kames; but contrary to what he advises of doing them with the plough, it has been found that they are always cheapest and best executed with the spade. When land is drained, which is wet from other causes, such means as have been used in other parts of Britain, and will probably be described in other Reports, have been used here. It may only be observed, with respect to hollow or covered drains, that those which have as much declivity, as circumstances will admit, filled with plenty of stones, and the uppermost made very small, continue longest serviceable; so that those which are executed at the greatest expence at first, frequently turn out cheapest in the end.

SECT. 2:—*Tillage or Cultivation, with the Implements of Husbandry used.*

ART. 1. *Tillage*.—Summer fallowing is practised for different purposes. It is either with an intention to free the ground from weeds, to give the ridges a proper form and direction for throwing off the surface water, or to open and mellow a dense strong soil. In all light soils, weeds multiply quickly, and frequent recourse must be had to Summer fallowing to destroy them: but since the turnip husbandry has been introduced into the upper part of the county, the land is fallowed in the Spring and beginning of Summer, and turnips sown upon it, in drills. The cleaning

of the ground is completed by hoeing the intervals; and an entire Summer fallow is seldomer used. In the light soils, in the lower part of the county, the land is too high rented for the turnip husbandry; and potatoes, for which there is great demand in that populous district, are substituted in the place of turnips, and the ground cleaned by hoeing them attentively. In the clay soils, a great part of the land has been Summer fallowed, principally for the purpose of draining it, by giving a proper form and direction to the ridges. Various forms and sizes of ridges have been tried for this purpose; but that which seems now to prevail most, is ridges from 13 to 15 feet wide, properly rounded, and not raised very high. To keep clay ground dry, it is found necessary to consult nature, and make the direction of the ridges follow the course of the declivity, making drains across, whenever the water does not follow the furrow; but when water can be led away without such cross drains, it is much to be preferred. In the more elevated parts of the county, where the exposure is deemed too severe for wheat, the land lies longer in pasture, and Summer fallow is less frequently repeated. On the lower grounds, husbandmen go round their farms, Summer fallowing as much yearly, as they can procure manure for, in order to sow wheat. Part of the light land, both in the upper and lower parts of the county, undergoes a Spring fallow for barley; but barley has succeeded so ill, for many years past, on the clay grounds, that the culture of it is almost abandoned. This perhaps is much owing to the farm dung being mostly consumed for raising wheat. For all other crops seldom more than one ploughing is given. In some parts of the county, the ploughing is begun soon after the harvest is over, but it is more general not to begin till after the 1st of January; and in frosty or very rainy seasons, there is frequently much land to plough when March comes in.

In heavy soils, it is common to put three or four horses to the plough. Some husbandmen have made a late improvement of making the fore and hinder horses draw from dif-

ferent points of the beam, so that the two lines of draught may coincide. In lands that are light and easy, in the latter ploughings of Summer fallow, or in breaking up turf, with an ebb furrow, two horses without a driver are now frequently used. There are, however, many intelligent husbandmen, occupying the heavy clay soils, who make very little use of the two horse plough : nor do they reject it from prejudice, but support their conduct by cogent arguments, which it may be proper here to state, and leave them to the judgment of the reader.

The clay soils in this county have almost always a dense argillaceous substratum (generally called *till*), so much of the same nature with the soil above it, that the particles of the latter, which are washed down with the rain upon the former, assimilate with it into one mass, and the till bottom seems to approach to the surface. When this is allowed to take place, rain, when it descends, is retained upon the top, the roots of plants are chilled by its stagnating there, and the crop fails ; for which reason, it is found necessary to plough the ground, once or oftener in every rotation, very deep, in order to allow the water to descend through the opened ground, and the roots of plants to expand freely. But though the improvements made in the construction of ploughs has considerably increased the powers of draught, so strong is the adhesion in these clay soils, that a pair of the best horses are frequently unable to overcome the resistance, when the ploughman aims at the necessary depth. He is naturally led, therefore, to lighten the draught, that the horses may more easily proceed ; and the work comes insensibly to be more lightly executed than circumstances require. It is, therefore, thought necessary to have four good horses in the plough, with a boy to drive them, that the ploughman, having nothing to attend to but the execution of the work, may make it of a proper depth and regularity. The husbandmen alluded to, farther urge, that the advantage of two horses in a plough without a driver, instead of four with one, is rather apparent than real, in heavy soils where

the resistance is considerable; for they assert, that, when the days begin to lengthen, and the ground becomes dry, four horses and two men will plough an acre and an half in a day, and that one man, with a pair of horses, will not execute more than the half in the same time. They do not, however, altogether reject the two horse plough, using it generally for the latter ploughings of Summer fallow.

Even where the soil is less dense and obdurate, it would probably be proper to plough somewhat deeper than ordinary, every third or fourth year. In all soils, the finest parts must be washed to the bottom of the stirred ground, and the use of it be lost while it remains there. If a ploughing deep enough to bring this up cannot be managed with two horses, more power should be added. A pair of oxen might be kept on a farm for such purposes, to great advantage, and very little additional expence.

ART. 2. *Implements of Husbandry.*—The ploughs used here are, 1st, The Scotch plough: this is now frequently shorter in the head, stils, and beam, than formerly, and some other improvements made upon it. It is preferred for ploughing stiff land, when only one ploughing is given, as it sets up the edge of the furrows most properly, and furnishes a plentiful mould for the seed. It is generally used for the first turning of fallows; and some farmers use it for all purposes. 2^d, Small's plough, sometimes with and sometimes without a chain: It is preferred for the after turnings of fallow; and some use no other for any purpose. 3^d, A little plough, brought to this country a good many years ago from Northumberland: it seems to be the same with that described by Lord Kames, under the name of the Rotheram plough, and has been found to answer very well for different purposes. 4th, The Rutherglen plough: it is chiefly used, in that neighbourhood, for turning up the deep soil of the valleys with a strong furrow.

The common harrows, which are still the most generally used, with four bills or beams, containing 20 teeth, are much the same as have been described in the Reports from other

counties. It is found necessary, both for reducing stiff ground, and collecting the roots of weeds, to give the teeth a considerable bevil forward, so as to stand at an angle of, from 70° to 75° with the plain of the harrow. There are others heavier, commonly called *brakes*, of different weights and constructions, according to the fancy of the owner, and the purposes for which they are intended. Of late, pairs of jointed harrows have been introduced, each having three bills, and the pair connected by joints, by which, while they are kept together, they are allowed to ply to the surface; the teeth are also placed so as not to follow one another directly in the line of draught. These are drawn by a pair of horses, and have been found to be very executive.

The roller is an important implement in the culture of the fields. Besides smoothing the surface, and bruising clods, to forward pulverization, the use of it can never be too much recommended for condensing open soils, in the droughts which frequently succeed the seed time. Even in the heavy soils, which are for the most part but too solid, the application of the roller is of great importance, during the droughts of the Spring. By pressing down the mellowed clods around the roots of young grass and wheat, the plants are reanimated, and a fresh luxuriance soon appears. By compressing the surface of fields sown with Spring corn, which, however solid they may naturally be, heave with the Spring drought, the interstices are closed, the moisture retained, the roots of the corn fastened, and the progress of the vermin which prey upon them checked. Mr. Cook's discovery, published some years ago, that snails and slugs, which come to the surface after the sun goes down, may be destroyed by rolling in the night, merits attention. The rollers here are of free stone, or of solid timber, and very rarely of cast iron, this last being too dear for common husbandmen; but the most approved rollers, and which are now getting pretty much into general use, are hollow cylinders built of wood, the circumference clothed round with strong plank; the diameter is about three feet, and the rol-

ler is divided into two equal parts, which turn round on an iron axis. The largeness of the diameter makes the draught so easy, that one horse can pull as much weight as two could do of solid stone, and the division of the roller into two parts facilitates the turning, the half on the inside moving back, while that on the outside comes forward.

The drilling instruments are, the turnip drill, and one which, by changing a nut upon the axis which turns round at the bottom of a hopper, sows either beans or smaller grain. Both of these sow only one drill at a time, and are used chiefly in the upper part of the county, the heavy soils lower down being less adapted to the drill husbandry. The instruments used for horse-hoeing, are small ploughs of different constructions, all of them very simple.

It is needless to describe the spade, the hand-hoe, the wheel-barrow, &c. simple instruments which, in the hands of the dextrous and intelligent labourer, are perhaps not much less important than all the machinery which has yet been invented for cultivating the ground.

An instrument composed of two sticks joined by a pin, and resembling the smith's tongs in appearance and use, is applied to pull thistles and docks in the corn fields. In all cases where the hoe cannot be used, if smaller weeds appeared to prevail so much as to injure the crop, women and children used to be employed to pull them with the hand; but from the scarcity of such hands, and the high price of labour, this is almost given up. Husbandmen now, when annual weeds appear to prevail much among the Spring corn, harrow the ground while the weeds are young, and their roots have not taken a deep hold. In this way the most of them are destroyed, and the corn which is deeper rooted, so far from being injured, is benefited; for though a few plants be torn up, the rest is invigorated by the stirring of the earth, and thrives and tillers more abundantly. The same practice is successfully used with peas and beans. If harrowing has been neglected, and wild mustard, which is the most frequent weed, prevails, the flowery heads are

cut off with the scythe, when it is in full blow, without injuring the corn.

The carts of this county still are mostly of a plain and simple construction, at the same time light and strong; but of late, many alterations and new constructions are introduced, which probably tend much more to inflame the expence than to add to the conveniency. Indeed, refinements of this kind seem to be unwisely followed in the constructions of many implements of husbandry, and particularly in carts, harnessing, &c., so that a horse seems to groan under a load of iron and leather without any good purpose being served. But the iron axle ought certainly to be excepted, as it compensates in durability and diminution of friction, the expence of purchase and the weight it adds to the carriage. The general effect, however, of all such refinements, is to abstract a part of the stock of husbandmen from its proper employment. Carts are drawn by a single horse, experience having evinced that, in this way, the animal is capable of the greatest execution.

The sickle is almost the only instrument used in reaping. Several mowing instruments have been introduced, but soon given up; and now that threshing mills are coming much into use, it is probable the use of the sickle will be still more confirmed, as corn thus reaped is in best order for threshing in the mill.

Every farmer has fanners, and there are now a good many threshing mills in different parts of the county. Where these are wanting, a considerable part of the corn is threshed with flails by the farm servants, in the winter mornings, by candle light.

SECT. 3.—*Manures, or Substances applied to fertilize the Soil.*

This section may be divided into three articles, treating, 1st, Of the manures used; 2^{dly}, Of their effects; 3^{dly}, Of substances which may be used as manure.

ART. 1. *Manures used.*—Little marl of a valuable quality has hitherto been discovered in this county; some has

been found under the mosses in the elevated parts of Carnwath parish and Lesmahagow, and laid upon the land with good effect; but the land is too high there to encourage the culture of corn to any great extent, and the distance too great to carry the marl with advantage to the corn lands lower down. Marl of an inferior quality is also seen in several places in the lower part of the county. It lies most commonly between two strata of the free stone rock, and would probably be found expensive to work. Besides, it is only found in those parts of the county where clay is the prevailing soil, and these clay soils show symptoms of possessing calcarious substance, by effervescing with acids; so that clay being also the predominant part in the marl, there is probably too strong an affinity between the manure and the soil, on which it could be most conveniently applied, to produce any considerable effect. Lime, therefore, is almost the only fossil used for manure, and it is now become very dear, as much as will load a single horse cart being sold at the kiln from 6s. to 8s. It is applied either upon fallow or grass grounds, at the rate of from 300 to 600 Winchester bushels per acre. The first time land is limed, its fertility is visibly increased. If it is moderately cropped, and allowed to rest for several years, the effects of the second liming are still more considerable: but all after limings have very little effect, and there is now land in this county, on which it proves quite vain to lay lime alone. For which reason, those who cannot procure enough of other manure, compound lime with scorings of ditches, cleanings of roads, and some kind of surface earth having a close turf of grass, with a little dung between the layers of earth*. This has been found to answer the expence, when lime alone would not. It has been found very beneficial to lay lime upon well swarded pasture, and allow it to lie on the surface for two or more years before the land be ploughed and cropped. Where few corn crops were taken at a time, and the

* It is studied, as far as circumstances will admit, to lay compost of the lightest quality on the heaviest soil, and vice versa.

land left long in grass, before being again broken up, the meliorating effects of this practice have been almost incredible. Besides lime, and the dung, and compost made about the farm, horn-shavings, foot, woollen rags, parings of leather, peat earth reduced to ashes, and coal ashes, when they can be had, are used as manures; and in the neighbourhood of a town, dung is brought from thence. From the city of Glasgow, in particular, dung is carried for six or seven miles round: and the preparation of an acre of land, for wheat, when the fallowing, dung, carriage, &c. is valued, costs from 12 l. to 14 l.

Some experiments of gypsum, for a manure, have been made; but the expectations raised by the accounts from America, &c. of the great success attending this practice, have been disappointed, the application of gypsum having produced little or no additional fertility.

Irrigation, by streams of water led over the ground, has been little practised here, except on the little swampy meadows above noticed; and these are flooded rather with a view to the substances which the water carries along with it, and deposits on the meadow as it glides along, than on account of the fertility which water itself bestows. It is not probable that irrigation will soon become common in this county. In the upper parts, where the ground is light and the subsoil open, it might, no doubt, be advantageous, wherever a command of water could be had; but in the clay soils, where the ridges are rounded for the sake of surface draining, it would be difficult to spread water over the surface; and if it could be done, the sweet herbage would soon be destroyed, and coarse aquatic plants raised in its place. The general practice of alternate tillage and pasture is also inconsistent with watering. Irrigated grounds should be kept in perpetual meadow. In other counties of Scotland, where grass grounds have been irrigated, with a view to tillage crops, a few abundant crops have generally been produced, but the ground left in a wretched state after them.

ART. 2. *Of the effects of the Manures used.*—The old husbandmen did not spread the lime upon the ground till it was completely soaked with water, and stuck together in lumps. It is probable they were frequently in the right. The poor soils, on which it was often laid, possessed very little vegetable substance on which caustic lime could act; and the principal effect of the lime likely was, to add to the calcarious substance when it was deficient, and to separate the parts of a soil which was too dense; by which the land was better prepared to receive advantage from dung, and such like manures. Accordingly we find, that lime alone, when laid upon poor soils which produce little herbage, has but a slender effect in increasing the fertility. It is agreed, however, that though the stalk is not much more vigorous, the grain is plumper, and the herbage is sweeter, when the land is laid in grass. Lime is now more frequently laid on while it is in some degree powdery; and when it is applied to grass grounds, the surface of which are covered closely with a growth of mosses and decayed herbage, the effects of it very soon appear, by consuming the old turf, and raising a pleasant verdure. But to derive benefit from lime on poor land, it is found necessary to compound it with good surface earth, or mossy earth, and in this way it has never failed to succeed. Lime is also laid on fallow ground, but the effects of dung are always more powerful. That very ingenious and industrious nobleman, the Earl of Dundonald, to whom the public is indebted for so many valuable discoveries, spent the Summer 1794 in this county; and, with his usual zeal and activity for the public good, made a number of experiments on substances which might be used as manures for different soils; a treatise on which he soon after published, and in this the inquisitive reader will find a great deal of information. His Lordship found that peat earth, hitherto thought so useless, might be rendered valuable manure, by mixing it with new slaked lime; and this is now begun to be put in practice.

Horn-shavings, are a powerful manure on land possessed of

vegetable substances, but the effect is less considerable on very poor soils.

Woolen rags act powerfully for one year. Parings of leather tend to open heavy soils; but they rot slowly, and have not a sudden effect.

Peat ashes are either made by paring and burning the surface of moss, in order to fertilize the ground itself, or by burning the ground on the borders of mosses in heaps, and carrying the ashes to the firm ground near. In the former case, very great fertility is produced at first, but, in a few years, these ashes, instead of producing useful plants, bear nothing but a kind of tall growing moss. In the latter, fertility is increased for a few years without any visible bad effects afterwards. But pure peat earth cannot be burnt till it is cut in small pieces, and thoroughly dried, and it yields but a small quantity of ashes. Ashes, in quantity, can only be made of the rotten earth about the borders of mosses, in which there are a great deal of the living roots of plants. Coal ashes are best when soaked with urine, &c.

The dung collected in towns is the most powerful manure. The dung of the farm yard, that is, the dung and litter of the live stock, has sometimes surface earth or moss mixed in it to increase the quantity. It is carried to the fields, sometimes twice, sometimes only once, in the year, but never turned. The husbandmen of this county are surprised to hear it recommended from other places, to turn dung over, and lay it up loosely, to admit the air and hasten the putrefaction; as they find that the dung which has been most condensed by the trampling of cattle is the best.

ART. 3. *Of Substances which may be used as Manures.*
—There is some cause to believe, that the earth frequently contains in its bowels substances capable of fertilizing its surface, if the proper application of them were understood; and it would be a matter of great importance, that experiments were set on foot for making such discoveries. The blaise or shiver, accompanying the coal, mentioned in a former part of this Report,—a kind of indurated schyftus, which

sometimes skirts out in the faces of banks, and moulders down with the weather. At first it appears quite barren, but after lying some time exposed to the influence of the sun and air, it not only fertilizes the soil on which it falls, but, where it accumulates to a body, shows great signs of fertility itself, plants growing in it with great luxuriance. The noble Lord above mentioned, strewed one kind of blaise which he found here, reduced to powder, about the roots of growing corn, and in a short time the deep verdure and luxuriant growth distinguished that part from the rest of the field. These schyfts might be had at coal mines, and at many places where they skirt out at the surface; and when they were found, upon fair trials, to have a fertilizing effect, might probably be used as top dressings with great advantage. The same noble author, and all the writers on chemistry, agree, that magnesia promotes, in a very considerable degree, the growth of plants. Much of it is said to be contained in the steatities, or soap rock, which is found in different places of this county. Urine might be collected in towns, and carried to the country, which, poured on other substances, would greatly enrich them for manure.

SECT. 4.—*Plants cultivated, and Rotations of Crops.*

ART. 1. *Plants Cultivated.*—Wheat is cultivated on all parts, by intervals, which are thought favourable for that grain. On open porous soils, sweating bottoms, and elevated situations, the plant has not been found to thrive, nor the ear to arrive at full perfection. It is sown either on fallow, or after potatoes, and more seldom now, after oats, or peas and beans. The time of sowing is from the end of August to the 1st of November: Spring wheat is seldom sown, and seldom succeeds.

Different kinds of seed wheat have been used, particularly the bearded wheat, which prevailed much for some time: but there is now scarce any other than the common white and red, the seed of which farmers mutually exchange with one another. The fallowed ground is manured for

the wheat crop with dung from towns, when within reach, or with farm dung and lime, sometimes with horn-shavings, (a quantity of which is annually commissioned from Ireland by the husbandmen of the county) and less frequently with woolen rags. Wheat seed is commonly steeped in a strong pickle of sea salt and water, and dried with hot lime, sometimes sprinkled with urine or the mephitic water of a dung-hill, and dried the same way. This is intended to prevent the smut; but a number of experiments concur in proving, that the caustic lime, incruusted round the seed, has the principal effect. It ought here to be observed, that wheat sown after the middle of October, is always in more danger of suffering from the smut, whatever precautions may have been taken, than that which has been earlier sown. The quantity sown is from 7 to 12 pecks, Linlithgow measure, per Scots acre; the produce from 8 to 16 bolls of the same measure.

Oats is the principal Spring corn; from two-thirds to three-fourths of the land tilled is sown with this seed. Different varieties of this grain are sown. Two have been known in the county for time immemorial; namely, late seed, sown in the lower and earlier grounds: this seems to be much the same with what is called Halkerston or Angus oats in the neighbouring counties; the other is called early seed, and is sown on higher and later grounds: it is an inferior grain, but ripens quicker, and produces a good deal of straw. To these may be added, early Tweeddale and Blainly oats, both of which have been long sown here. Their time of ripening is between that of the two former, and they are not deficient in straw. There are several other kinds of early oats which have been more recently introduced; such as the Polish and Essex oats, the Friesland or great Dutch oats, and the red oats; this last has indeed been long known about the head of the county, under the name of small barley corn. These ripen early, but the straw is short, and unpalatable to cattle as fodder. Some of them shake very easily with the wind; but they are still of importance

in backward seasons, as they do not fail to ripen and produce plump grain. Oat seed is never steeped; but some have spread it on the barn floor, and sprinkled it with salt, turning it from time to time, till the salt had liquified and moistened the grain. This practice should be more general, as it certainly has a tendency to defend the young corn from the devastations of the numerous tribes of the caterpillar kind, which lodge in the earth in the Spring time. A very intelligent correspondent, whose accurate observation and veracity may be depended on, informs, that he has long been in the custom of bringing seed oats from the sea coast, where the air is somewhat impregnated with the saline particles raised in spray, and that he has uniformly observed the crops of this seed escaped the injuries of land vermin, while others around suffered greatly. If the small quantity of salt this grain could draw from the air, while growing, is thus effectual, it may be presumed, that soaking the seed with salt should not be less so. It is certain, that salt destroys all the kinds of vermin which creep in the earth, and devour the roots of plants in the inland country; and it is a pity that, for the sake of a tax so unproductive of revenue, husbandmen should be deprived of the benefit of it. From 12 to 18 pecks of oats, of the ordinary measure of the county, which is somewhat larger than the Linlithgow barley measure, is sown on an acre; and the produce varies from 4 to 18 bolls per acre. Peas and beans seldom come to perfection on high exposures, and therefore are chiefly cultivated on the lower grounds. They are sometimes sown separately, sometimes mixed, and very rarely in drills. The beans sown here are ordinary horse beans, and a kind of late grey pease usually accompany them. Husbandmen frequently bring a change of seed from the Kerse ground on the banks of the Forth, which is found to be an advantage. Grey Hasting pease are sometimes sown alone; the straw of these is not so bulky, nor the fodder so good, as the late. Beans are sown as early as the season will permit, sometimes on the surface, and ploughed

in with a light furrow; from 14 to 18 pecks, wheat measure, are sown on an acre. They are sometimes very productive, yielding 18 bolls of the same measure an acre: in rainy seasons, or when autumnal frosts come in early, they are sometimes good for little.

Small quantities of flax are sown through all the county, and in some particular places a good deal is annually raised; especially in the parishes of East and West Monkland, at one end of the county, and that of Carnwath, and the parishes around it, at the other end. Much of the flax produced in the former, is very valuable. Flax raisers rent land proper for it, at from 4 l. to 7 l. per acre; and there may be about 200 acres thus occupied annually. Women who purchase this flax, spin from three to five spindles of yarn out of a pound*, which they sell to manufacturers, to be wrought up into lawn and lace thread. The flax of the latter is of a coarser quality, and is spun by the women in the farm houses and villages, into very useful yarn, from one spindle to half a spindle per pound, large quantities of which are sold in the markets of Lanark, Carnwath, Biggar, &c.

The Spring seed time is very uncertain, depending on drought occurring, sufficient to dry up the Winter's moisture. It is sometimes begun about the end of February, and sometimes scarcely finished against the 1st of May. Potatoes are planted from the middle of April to the middle of May, principally in drills made by the plough, from two feet six inches, to two feet nine inches asunder. There have been instances of upwards of 24 tons of potatoes being taken from an acre; but the produce is frequently below half that quantity. It has been observed, that the more frequently potatoes are returned on the same ground, the produce is the less. The disease, called the curl, also frequently occasions a great deficiency in the produce on the lower grounds, it not yet being prevalent on the heights, though it seems to be creeping upwards. No satisfactory discoveries having

* A spindle is a parcel consisting of 48 cuts; each cut is 120 threads round a reel of two and a half yards circumference.

yet been made of the cause or cure of this disease, it must be left for future inquiry. Barley is sown from the middle of April to the end of May. Lincolnshire and Siberian barley were introduced into this county for seed, and were somewhat in vogue for a time; but both these and the Tartarian oats, which were also pretty frequently sown, seem now to be entirely laid aside. The only kinds of seed now used are, the barley with two rows of grains in the ear, and the Bear, Big or Chester barley, as it is called in different places, with four rows, both of which are well known. Barley is sometimes steeped to forward its growth: but when drought continues long after sowing, if the land is not well pulverized, the seed is in danger; its roots, springing with the moisture it contains, are withered and die. From 8 to 10 pecks are sown on an acre; and as many bolls are reckoned a good crop. Turnips are sown from the end of May to the 10th of July; and, in dry early land, sometimes later. Few field cabbages, or greens for feeding cattle, are yet cultivated. The grasses cultivated are, red, white, and yellow clover, rye grass, and rib grass. The seeds of the *holcus lanatus*, and of some other native grasses, either saved in the field, or collected in hay lofts, are sometimes sown instead of rye grass. Sometimes only red clover is sown along with a little rye grass; sometimes a mixture of more, or all of the above, are sown on the same field, according to the purpose for which it is intended. Grass seeds are either sown among young wheat in the Spring, or along with oats or barley. Grass after wheat generally succeeds the first year, but is better the second year when sown with barley. In some parts of the county, it is observed, that clover is sown on a field from which two successive white crops have been taken, than where there has been only one.

An observer residing in a distant province, mistaking what is here advanced as a fact, to be laid down as a principle, says, this doctrine will not go down in these days. Though it had been observed, in many instances, that clover not only sprang more regularly, but grew more luxuriantly,

after two successive white crops, than after a green and a white one, the assertion was made with caution, lest it might not always be the case : but the author has had some strong instances of it under his eye this season, and is persuaded it is invariably so. If the observer, therefore, is dissatisfied that nature does not act according to his system, he may change her operations if he can.

Of Plants not commonly cultivated.—The public could derive no instruction from any history, which could here be given, of the culture of plants not commonly cultivated, there not being accounts sufficiently authentic to determine whether such plants have failed of being more extensively propagated, from their not being adapted to the soil and circumstances, or from want of due attention to the culture. There is no class of men less fit for new and curious inquiries than husbandmen. Habit has confined them within a routine which admits of few material variations ; and both mind and body are so much occupied with their ordinary labours, that neither leisure nor disposition are left to look after new ones. It is only among people who follow agriculture, either for amusement or partial employment, that the existence of that inquisitive turn, which leads to discovery, is to be found. But these people are frequently too sanguine, not always happy, in choosing the subjects of their experiments, and often diverted, by other circumstances, from pursuing them to the final point. Hence the culture of different plants has been introduced, and dropped, without it being possible to decide, all circumstances considered, whether the more extensive culture of such plants would have been beneficial or not. It may be said, however, that since the introduction of artificial grasses, potatoes, and turnips, the culture of no plant of general utility has taken place in this county ; and from thence an inference may be drawn, that every kind of culture, of such description, will, at length, find its way of itself.

ART. 2. *Rotations of Crops.*—Rotations are as various as the climate and the soil. It will be sufficient to mention a

few, in different parts of the county. Among the light soils of the upper ward, the two following are the most prevalent: By the first, the whole arable land is divided into eight parts, and each in its turn undergoes the following rotation; 1st year, fallow or turnip in drills and dunged, and a portion in potatoes; 2^d, barley and sown with grass seeds; 3^d, hay; 4th, 5th, and 6th, pasture; 7th and 8th, oats. According to the second, the half, or as much of the farm as is judged convenient, is laid out in four divisions, each in its turn managed as follows; 1st year, fallow or turnip, &c. 2^d, barley or oats with grass seeds; 3^d, hay; 4th, oats. The remainder of the farm lies in grass, and is pastured by the dairy cows, cattle to be fattened in Winter on turnips, &c. A part of this is taken in at pleasure, in exchange for a part of what has been kept in culture. In the light lands, in the lower part of the county, turnips are not cultivated; and there different practices prevail. The following rotation is the most approved: The farm is divided into five lots, each managed thus; 1st year, the land is Spring fallowed, well manured, mostly with Glasgow dung, and potatoes planted in drills, and kept clean by Summer hoeing; 2^d year, wheat sown as soon as the potatoes can be taken up, and grass seeds sown among the wheat, in the Spring; 3^d year, hay, twice cut; 4th year, hay, once cut, and the after faggage pastured; 5th year, the field having been manured with a compost of lime and some kind of earth, in the 5th harvest, is cropped with oats. Sometimes barley is sown, instead of wheat, the second year; and sometimes the land is Spring fallowed after the wheat and barley without manure, sown with grass seeds; and thus the rotation takes in another year. In the clay soils, in the same neighbourhood, the land undergoes a clean fallow, and is strongly dunged for wheat. Beans succeed the wheat; oats, with grass seeds, the beans, &c. Among the variety of practices which obtain in the middle country, the two following are prevalent: By the first, the land is Summer fallowed, dunged and limed, and wheat sown;

beans and peas succeed the wheat; and oats, with grass seeds, the peas and beans; the grass is cut for hay, one or two years, and afterwards pastured so long as it is thought proper to let it rest. By the second, the land is dunged or limed, or laid over with compost upon the grass, and cropped, 1st, with oats or peas; 2^d, with peas or oats; 3^d, with oats, sown with grass seeds. It is the rule, in some cases, to let the land rest as many years as it has been cropped; in others, double that time. On the more elevated land, on the east and west boundaries of the county, circumstances are unfavourable to the rotation of green and white crops. There some kind of manure is laid upon the turf, two or three crops of oats taken, and grass seeds sown with the last. Some landholders have bound their tenants never to crop more than a fourth part of the farm, the rest being occupied in pasture or hay. Some tenants, who are not bound, follow nearly the same plan, from conviction that it is best in their situation.

SECT. 5.—*Of Grass Grounds of all kinds, and the purposes to which they are applied.*

Grass grounds are naturally divided into two kinds, viz. 1st, Such as from situation and circumstances are deemed unfit for any other purpose; 2^{dly}, Those which are laid in grass, not only for present profit, but also in order to render them more profitable in tillage, when they shall be used in that way. The first kind must chiefly be used in rearing live stock; and, therefore, what relates to rearing may be included under that article. The second is more frequently used to supply food to stock already reared, and fatten animals for the table; what relates to the provisions derived from animals, will, therefore, come under the second article.

ART. 1.—*Pastures that are deemed unfit for any other purpose.*—Among the mountains, in the upper part of the county, flocks of sheep are kept. About 50 years ago, corn was cultivated on some of the lower grounds, at the feet of

the mountains, more than sufficient to feed the inhabitants; and many neat cattle were kept. At that time, the sheep, more restrained on the summits and poorer pastures, on many of which an animal can hardly live in a storm, were small, and of no great esteem in the market: but a succession of bad seasons ruining the crops, has obliged the farmers to abandon agriculture; and torrents, from time to time, having brought down stones from the hill sides, and choaked up the channels of the rivers and brooks, many of the little valleys are so frequently overflowed, that they are no longer capable of cultivation. Scarce any corn is now raised, few black cattle are kept, and the sheep, now indulged in the best pasture, have increased in size. They bear very coarse wool; but are extremely hardy, and much esteemed by the Yorkshire dealers. They are now reckoned fully equal to the best in the neighbouring counties. The flocks of the farmers formerly consisted of about 1000 sheep each; but of late some individuals rent more land, and are possessed of from 3000 to 7000.

The despair produced by such natural obstacles against every attempt towards the improvement of the country, has, perhaps, been too easily admitted. Two different causes have contributed to strengthen and confirm this despair; the effect which the arguments of philosophical economists has produced on the conduct of landholders, and the invitations which rising manufactures have held out to the people. But one instance of land cultivated here, probably of greater altitude than any other in the island*, will show, that if the bent of the stock and industry of the society were more applied to the improvement of their most important and permanent property, much might be done every where to increase fertility, even in the most unpromising situations.

The inhabitants of Leadhills find it necessary for their

* The height of the mountain Tintock has been stated at 2160 feet above the level of the sea, and the site of Leadhills at 2000 feet; but some geometricians assert, that they have found the height of Tintock to be 2400 feet, and that Leadhills is nearly on the same level.

accommodation, to keep milch cows, which go to pasture in the neighbouring moor. The dung of these cattle is laid upon barren moorish ground near the village; this ground is levelled, formed into narrow ridges with the spade, and potatoes, turnips, cabbages, greens, &c. cultivated upon it, by the inhabitants at their spare hours. One spot has been laid down in grass, and another taken up from time to time; and there are now a good many acres, naturally of the most barren soil, bearing grass little inferior to that on the best land in the county. Besides the vegetables above mentioned, and green food in Summer for a great number of cows, 9000 or 10,000 stones of hay are annually made, for Winter feeding.

Along both sides of the county, so far as the moors extend, sheep pasturing is followed; and the quality of the sheep is in proportion to the pasture. Where the moorish pastures are disjoined by the intervention of arable fields, the flocks are smaller, from 300 to 400, and a greater number of black cattle are reared. On the coarse high land, on the east side of the county, it has been found the most profitable practice to winter young black cattle. The pastures are allowed to grow untouched, from the end of May to the end of August. The rushes, and such other coarse herbage as grow on the marshy places, are mown, while tender, and laid up for Winter food. About the end of August, the pasture is stocked with small young Highland cattle. They live upon the grass, when the weather is moderate; when a storm happens, the Winter fodder is given them on some sheltered spot. When they can be accommodated with some slight shed, it is reckoned an advantage. The pasture necessary for wintering one of those, is thought equal to that of five ordinary moorland sheep of the first year; (*bogs.*) The cattle are sold off in May, and are generally increased in value from 25s. to 30s. per head. In most of the farms in the elevated parts of the country, where a less proportion of the land is tilled annually, and the pasture less rich than in the lower

parts, it is the practice to breed a good many neat cattle; nearly about the half of what are brought forth; mostly females, few oxen being reared in the county. These feed on the pastures where they are bred, and either supply the place of old cows disposed of, or are sold at three years old, with the first calf, at from 4*l.* to 7*l.*, and since this Report was first printed, from 7*l.* to 10*l.* a head, according to their size and figure. In the lower parts of the country, fewer calves are reared; sometimes no more than necessary to keep up the stock of milch cows. Most of the farmers through all the county rear young horses, chiefly of the draught kind. In some cases, one foal, in some, two are reared, on a plough gate annually, according to the quantity of pasture that can be spared, for feeding nursing mares and colts. Those who Summer fallow much of their farms, and have much manure to carry from a distance, rear no foals, and prefer geldings to mares for performing their labour.

The natural meadows, repeatedly mentioned, are saved always for hay. The bottom being cold and swampy, the grasses spring late in the season, and the hay is not cut before the beginning of August. The situation being damp, and the hay soft, it is frequently got with difficulty, and suffers in the making, both in colour and flavour. About 50 years ago, this was almost the only hay in the county, and the stables of inns, &c. were supplied with it; but since the culture of artificial grasses became general, it is no longer a subject of commerce, and is consumed by the live stock on the farm.

ART. 2. *Artificial Grass, Dairy, and Feeding.*—The first crop of sown grass is generally mown for hay. The hay harvest commences about the beginning of July. Hay making is conducted different ways. Some new haymakers mow only when the weather is fair and the grass dry. Rakers immediately follow the mowers, and put up the hay into very small cocks; it is afterwards turned daily, the size of the cocks being increased as it dries, till it be ready for treading up in field ricks. However this practice

may succeed in the southern counties of England, it does not seem to be well adapted to the state of this country. Unless the weather be uncommonly favourable, the hay always suffers somewhat in colour; and under repeated rains is greatly injured. Many of the most expert husbandmen now follow a very different mode. The hay is allowed to lie in the swathe for three or four days, and then, if the crop is not heavier than from a ton and a half to two tons per acre, it is raked together, in a dry time, and immediately tread up into round or oblong ricks in the field, where it stands till it is thought to be in condition to be put safely into large stacks. Very heavy crops must be turned in the swathe, and both sides exposed to the drought; and when great rains have occurred, all the hay must be turned. What lies immediately under the shade of trees or hedges is removed towards the middle of the field, and allowed to lie open to the drought for a few hours. In this cheap and simple manner hay is better preserved than by more operose methods.

Few have attempted to save clover seed; but the seed of rye-grass is frequently saved. When this is to be done, the hay is bound in sheaves after the mowers, and set up in shocks for a week; the seed is then threshed, or skutched off, and the hay put in the ricks.

For the most part, the latter growth, after the hay, is pastured either by the live stock on the farm, or cattle bought for fattening; and as there are but few instances where a second crop of hay is taken, the grounds which have been laid in grass are pastured the same way, so long as they are allowed to rest, after the first year.

It was a prevalent custom, in this county, to keep a great many milch cows, long before the profits of the dairy became considerable, or the management of it was understood, it being thought necessary to keep constantly a number of cattle for making dung to recruit the arable land. These were led around the indifferent pastures, in Summer, travelling a great deal to gather a moderate support. In Winter

they were driven out to the fields, to endure all the vicissitudes of the weather, through the day, and fed at the stall, in the evenings and mornings, with a little straw; and were generally much reduced, before the return of the grass. With this treatment, the quantity of milk which they yielded was little, and as neither the demand nor the price was considerable, the management of the dairy was little studied.

The feeding of calves was the first object of profit. On the elevated lands, where the harvest is less perfect, part of the unripened oats were taken to feed the milch cows, which increased the quantity and richness of their milk. The calves, which were brought forth, about the latter end of harvest or beginning of Winter, were fed at first with the milk of their dams, and afterwards with the thicker milk of those which were beginning to dry, having been taught, from the first, to drink all that they got. In this manner, rich veal was fattened and sent to Edinburgh, from Christmas, onward, to supply the tables of the wealthy, where Lanarkshire veal has been long famed, and bought at exorbitant prices. In the progress of improvements in the country, a better provision of Winter food for cattle has been made, and, by feeding milch cows with potatoes, turnips, &c. the practice of fattening veal has been much extended of late; so that, though the increase of wealth and luxury has greatly enlarged the demand, the rise of price, on this fine veal, has not been in proportion to that on other kinds of provisions: however, in all places distant from markets, it is still considered as the most advantageous way to dispose of Winter milk.

As the prices of butter and cheese advanced, the owners of dairies, by degrees, became more studious, not only to increase the quantity, by paying more attention to the feeding of milch cows, but to ensure a preference in the market, by adapting the quality to the taste of the best customers. This was, however, confined, for a time, to the most favourable situations; those who were less happily situated, attributing solely to soil and circumstances what was in a

great measure owing to skill, attention, and cleanliness, were not eager in imitating, when they despaired of arriving at perfection. It was not till after the first peace of Paris, when the rapid progress of commerce and manufactures brought a new influx of wealth among the inhabitants, and greatly increased the demand and price of butter and cheese, that attention to the dairy became general. Fresh butter, especially, became an indispensable article at every breakfast table, and all that was made with care and cleanliness sold quickly, at high prices. This stimulated the country house-wives, throughout the county, to study and follow the requisites of the dairy: and now all the different articles, which it produces, are to be found, of an excellent quality, even in the elevated parts of the county, which were formerly deemed the most unfavourable; particularly within the reach of Glasgow, where the opportunities of comparing, in a great market, prompts people to observe all the minutiae necessary to bring their commodities to the greatest possible perfection. A pound of butter, indeed, made on the high pastures, is supposed to yield a little less oil than one made on the low; but the taste and flavour is equally good, and the former is less apt to become rancid in keeping. The produce, too, is less, in proportion, on the former than on the latter. The dairy business is conducted three ways in this county: Either the whole milk is made into cheese, or butter is made of the cream, and cheese of the skimmed milk; or, in the most populous parts of the county, where there is a great demand for butter milk, as an article of food to the poor, the whole milk is churned. People are induced to adopt any one of these ways, either from situation, or from some circumstances of supposed convenience. There are some pastures, from which the milk yields proportionally more butter, others more cheese: but there are very few instances in which this variation in the nature of the pasture has been found considerable; and there is no sure rule of judging, but experience. It is mostly fancy which determines the choice,

the profit from the different ways being nearly equal, in general. By averages made up from the reports of the owners of dairies, in different parts of the county, eight Scotch pints of new milk, or the cream taken off it, will produce a pound (or 22 ounces avoirdupois) of butter; 80 pints will, therefore, produce 10 pounds, and after the cream is taken off for the butter, 70 pints will remain for cheese, and this will make a stone (22 pounds avoirdupois) of cheese, saleably dry; about 53 pints of new milk will make a stone of cheese. The state of the different practices, then, will stand thus:

80 pints churned.		New milk cheese from 80 pints.		Butter and skimmed Cheese from 80 pints.	
	s. d.		s. d.		s. d.
10lb. of butter,		24lb. at 5d.	10 0	10lb. of butter,	
at 8d.....	6 8	60 pints whey,		at 8d.....	6 8
76 pints of milk,		worth 2d. per		1 stone cheese,	4 8
at $\frac{1}{2}$ d. per pint,	4 9	gallon,.....	1 3	6 pints butter	
				milk, at $\frac{1}{2}$ d.	
				per pint,.....	0 4 $\frac{1}{2}$
				50 pints weak	
				whey, at 1d.	
				per gallon,	0 6 $\frac{1}{2}$
	£. 0 11 5		£. 0 11 3		£. 0 12 2 $\frac{1}{2}$

Two or three pigs are frequently reared on the whey at a dairy, and fattened with potatoes; but the feeding of hogs is not carried to any great extent in this county.

Of two cows, of the same size, and perhaps from the same parents, one often gives a good deal more milk than another, and the milk of one cow is of a richer quality than another: but cows in general give more or less milk, and better or worse, in proportion to the quantity and quality of their food, the regularity with which it is administered to them, and to the ease they enjoy. It has been always observed, that two or three cows, kept by themselves, are

more productive, in proportion, than greater herds, though the few should enjoy no visible advantage over the many, but perhaps the contrary: which seems to show that undisturbed quiet and minute attention are of great importance. Particular instances might be given of cows in this county giving a great deal of milk; but it is not from uncommon instances, but general averages, that a just idea of a district can be formed. It is reckoned a moderately good milch cow that gives eight Scots pints a day, and supposing her whole milk through the season to be equal to 150 days at that rate, it will make 150 gallons; which, valuing every 10 gallons at 11s. 3d. the lowest of the above states, it will make the annual produce of a milch cow, exclusive of the calf, 8l. 8s. 9d. This, however, is far above the average produce of the dairies in this county, which runs from 6l. to 4l. per cow, according to the situation; and about one-third more may be added to this and the other money articles, on account of the rise of price in commodities of the dairy since this Report was first printed.

Those who keep milch cows give them the best pasture in Summer. When the grass fails, wherever turnips are raised, these are given, in order to protract the milk season. But full feeding with turnips renders the milk nau-seous; and none of the recipes which have been recommended can cure its rankness. When cows get plenty of good fodder, and are only partially fed with turnips, the purpose of continuing milk is, in a great measure, answered, and the effects on the flavour of the milk little perceptible. If turnips be washed, or if the weather be rainy when they are taken up, the flavour of the milk is the stronger. In some places potatoes are used in place of turnips, for the same purpose, and are much preferable, producing not only plenty of milk, but of a rich quality and of a good flavour*.

* Though the profits of the dairy are moderate, it seems to be very doubtful, if a farmer can make as much of his pasture by any other management. It was a late subject of debate, proposed for the consideration

Sheep and neat cattle are fattened for the table, both in Summer and Winter. A good deal of inclosed land, not in lease, is occupied for this purpose, and is either stocked by the proprietors, or by jobbers, who rent it by the year. Some farmers employ a part of their inclosed land the same way. The ground is stocked, either with wedders or ewes with lamb, or with neat cattle, according to the suitability of the ground and the fences, and to the opinion of the grazier. Sometimes the beasts are bought in, about harvest, and wintered upon the ground; sometimes the pastures are kept void in Winter and stocked after the grass has got up. In Winter, both sheep and neat cattle are fattened upon turnips in the upper ward, where the turnip husbandry prevails most. Sheep are either inclosed in nets, and fed upon the turnip ground, or, if it is not dry enough, the turnips are carried to an old pasture field and given them. In this last case, only three-fourths of the turnips are taken up, and the sheep are afterwards allowed to stroll over the field and gather the remainder, that some manure may be left. Neat cattle are fed at the stall. Any turnips that are raised in the lower parts of the county, are mostly used in feeding neat cattle. Potatoes have been used with great success in feeding cattle. They are given either raw or boiled. Some think the latter has the quickest effect. The same root has been found a very frugal and a very hearty food for work horses.

of a respectable society of practical farmers in this county, whether keeping milch cows, fattening cattle, or fattening sheep, was the most advantageous; and it was decided in favour of milch cows, by a great majority of votes. The principal arguments on this side were, that the produce of the dairy was never equal to the demand, and therefore the market less fluctuating; that the farmer who kept milch cows had little occasion to go around the country to markets, and had more leisure to attend to his farm; that by keeping milch cows, properly fed, attended, and littered, the greatest quantity of manure, for the improvement of the land, could be made.

CHAPTER VI.

GARDENS AND ORCHARDS.

LEAVING ornamental gardening, and those niceties of the art, practised to produce the delicate fruits which the want of sun denies us naturally, it will be sufficient, for a work of this nature, to mention the gardens cultivated for supplying the more simple and urgent wants of man. The chief of these are the mail gardens around the city of Glasgow, from which that populous place is supplied with all the variety of culinary vegetables produced in this country, at their different seasons; and though the first articles do not come so early to market as at Edinburgh, where the soil is light and dry, as good sale always stimulates the exertions to answer it, the growing wealth of Glasgow provokes the gardeners to make quick advances. So plentiful is the supply, that much garden stuff, towards the latter end of the year, is sold at a cheap rate, and carried to the neighbouring villages. Families in the country, and many families in the smaller towns, are well supplied from their own gardens. And the gardens round the villages in the country, before mentioned, afford great accommodation to the inhabitants, as well as wholesome and innocent recreation to those of sedentary employments.

The Clydesdale orchards lie mostly between the bottom of the lowest fall of the river and the mouth of the South Calder. They are chiefly of apple trees, with a mixture of pear ones, and some of plumbs. Few of them are large, but many small ones are planted up and down the country. They were stated, in the former Report, to amount to 200 acres; but some new ones having been lately planted, and some more minute information having been since received, they may be safely said to be upwards of 250 acres. The produce is very precarious, the fruit being frequently destroyed in the blossom, by Spring frosts and caterpillars. Some years, the whole value has amounted to up-

wards of 2000l. The value of the fruit is not always in proportion to the number and size of the trees. Those who cultivate the ground around the trees, taking care not to injure the roots, and giving manure from time to time, have finer fruit, and a much greater quantity, in proportion, than those who do not. Much also depends on adapting the trees to the soil and exposure. Though the different kinds of apples, &c. are generally engrafted on the same kinds of stocks, each assumes the habits peculiar to the scion. Those who have been attentive in observing this, and choosing the kinds best adapted to their situation, have found their account in it.

But it ought not to be understood that the choice of the stock is of no importance. Native crabs are the hardiest, and prove the most durable trees. Codling stocks, and those raised from the seeds of good fruit, generally produce also finer fruit; but the trees seem to be more subject to disease. Yet diseases are perhaps as often communicated from the scion as from the stock. But it would take up too much time to state all the phenomena which appear in the orchard. It is sufficient to say, that there are many intelligent people in this county attending to the culture of fruit trees; and it would be of much importance that they were to meet frequently and compare their observations; by which, discoveries, which are yet wanted, might be made.

The Clydesdale orchards are mostly planted on steep hanging-banks, and have always been found to succeed better on such situations than on the plain. Apple trees, particularly, seem to delight in a soil pretty much inclining to clay, especially if it is of a good-depth. The pear tree requires the ground to be richer, but rather clayey than open and sandy. Plumb trees are generally planted round the verge of the orchard, and are profitable, not only for the fruit they bear, but for sheltering the other trees. All fruit trees require shelter, and do best when they are embosomed in woods. The latest kinds do not arrive at perfection in backward seasons, and therefore it is always proper to have

a good mixture of Summer and Autumnal fruit along with the Winter's. A just proportion of apples, pears, and plumbs, is also proper, as one kind sometimes succeeds when another fails. Upon the whole, though the produce of the orchard is precarious, when the original insignificance of the grounds, on which fruit trees succeed, is considered, and the ready sale and high price which the manufacturing towns afford for fruit, an orchard planted with judgment, and carefully cultivated, is certainly a profitable kind of agriculture. Many proper places remain unplanted, probably from a dread of the wanton depredations so frequently committed.

Besides the larger fruit, great quantities of gooseberries and currants are cultivated, and, when well managed, are said to pay very well.

CHAPTER VII.

WOODS AND PLANTATIONS.

THIS chapter may be divided into two sections; 1st, The kinds of trees, and extent of plantations; 2^d, Observations on the different kinds of forest trees.

SECT. 1.—*Kinds of Trees, Extent of Woods and Plantations, &c.*

There are scarcely any instances of spontaneous coppices above the uppermost fall of the river. But some of the principal landholders, of late, have done much to adorn the country with planting. In the early part of the present century, except a few trees about some of the houses, this part of the country was quite naked. There are now about 1800 acres planted, three-fourths of which, at least, has been done in the last 20 years. The trees are of various kinds, but the Scots pine and the larix are the most prevalent. From the top of the falls downward, coppices arise every where, near the sides of the river and the streams which fall into it. These consist of oak, ash, birch, elm, alder, holly, gean or wild cherry tree, fallow of different kinds, &c. intermixed with hazel or other shrubs. Of these there are 760 acres in the lower part of the upper ward, besides 580 acres of planted wood, making the whole in this tract 3140 acres. In the middle ward there are 1350 acres of coppice, and 2850 acres of planted wood. There are few coppices in the under ward, perhaps not 40 acres altogether; nor is the planted wood of great extent. Hedge rows and narrow stripes surround the small inclosures, and give the country a clothed appearance, but probably the square contents do not exceed 700 acres. This makes the whole of the woods in the county 7990; but there is now reason to believe there are considerably above 8000 acres.

The copse woods are sometimes cut once in 25 or 26 years, but are more frequently allowed to grow 30 years;

and an acre is sold at from 20 l. to 30 l. Woods that are extensive are divided into separate lots, called *hags*, one of which is appointed to be cut annually. These hags are from three to seven acres, according to the extent of the wood, and the sale in the neighbourhood. It has long been the custom to leave 20 or 25 select trees, called *reserves* or *whitters*, in an acre, at each cutting. The intention of this seems to have been to furnish purchasers with an assortment of wood of different sizes. This practice is still continued, but appears to be an injudicious one. When those trees, drawn up long and slender, by the shelter of the surrounding wood, stand in an exposed situation, they are unable to bear the blast after they are left single; and if they are not quite stunted, make little acquisition of size. Should they happen to thrive, they do more injury to the young growth around them, than all the additional value they attain. An observer on this, who seems to be a gentleman of good sense and candour, thinks, "that the reserves are so far distant from each other, as to cause slight injury to the surrounding wood, since the lower branches of the former might be lopped, to give the sun and air easy access to the latter; and that it would be advantageous to have a supply of the various wood and timber which may be required upon the same spot." This is, therefore, here stated, and the whole left to the judgment of the proprietors of woods.

Formerly there was no kind of trees planted, to any considerable extent, but the Scots pine; and there are still more of this kind than any other, it being planted to protect the deciduous kinds. When this is the case, it ought to be cut down before the others grow too tall and weak. When it is planted unmixed, it is reckoned the best-practice to put the plants pretty close together, about 6000 to an acre; so that by the support they derive from one another, they may grow up straight and tall, and the tops meeting, may exclude the air, and smother the under branches, while they are still small and weak. This is called pruning themselves, and is found to be the best way for preserving the health of

the trees, and obtaining valuable timber. It is absolutely necessary, that open drains be made through all the hollows, that no water may stand. When the general height of the trees is about eight feet, and no living branches on them, but at the top, it is time to begin to weed them; and this ought to be regularly carried on, according to contingent circumstances, for five or six years, till the trees stand nearly at such a distance as may give them room to grow to useful timber; all future weedings being dangerous, not only for opening avenues which may admit too strong a stream of air, but on account of the noxious quality which the putrid roots of fir trees, cut down after they have arrived to a considerable size, shew, by frequently killing those which have been left standing. The abundance of coal and peat in this country, renders the first profits of planting inconsiderable. In the thinly inhabited parts of the upper ward, where there is little demand for small wood to make fences, &c. the first weeding of plantations is a heavy expence. Even wood farther advanced had little sale, till the erection of the iron works around occasioned a great demand for small trees, for supports in the mines, and for wood of every kind for different purposes. In the lower and more populous country, every kind of wood finds some market; and valuable timber of late has sold very high. The Scots pine planted on very poor land, 25 years old, has sold for 25*l.* per acre; the same when properly thinned, and standing 50 or 60 years, for 80*l.* and upwards. The prices of different kinds of well grown timber, per cubic foot, were as under:

	<i>s. d.</i>		<i>s. d.</i>
Pine, or Fir - - -	9	Lime, (Linden) - -	1 4
Oak - 1 <i>s.</i> 8 <i>d.</i> to 2 0		Poplar (mostly the white) 1 4	
Ash - 1 <i>s.</i> 6 <i>d.</i> to 2 0		Birch - - - -	1 0
Elm - - - -	2 0	Holly for veneering,	
Plane (Sicamore) - 2 0		very rare - - -	5 0
Beech - - - 1 <i>s.</i> to 1 6		Gean tree - - -	1 6
Sallow, fit for mill tim-		The timber of decayed Pear	
ber - - - -	2 6	and Apple trees, about	1 6

The stagnation of commerce, which the commencement of the war induced, diminished the sale, and lowered the prices; but they are now again as high as ever.

SECT. 2.—*Observations on the different kinds of Forest Trees.*

Important instructions, with respect to the kinds of trees adapted to the soil, bottom, and exposure, intended to be planted, may be obtained, by observing the different degrees of success attending those trees in the numerous plantations of this varied county. It may not be improper, therefore, to insert what occurs in different situations, respecting the different species usually planted.

The Scots Pine, or Fir, as it is usually called, is not adapted to the greatest altitudes. It begins to shoot in April, and completes its year's growth by the middle of June; so that the Winter often continues to reign in the heights, where the sun is not reflected, till the Summer of the pine be over. Unable to struggle with a repetition of such seasons, it languishes and dies. Of all the trees of this kind, planted at Leadhills something more than 30 years ago, and very carefully treated, only two or three remain, in a very sickly state. On a moorish hill in the same neighbourhood, there is a plantation, standing a little higher, and the soil incomparably worse. The trees are now about three or four feet high, and have already ceased to make farther progress. Besides the great elevation, there is, perhaps, something in the bottom injurious to this plantation. The Scots pine planted in much lower situations, upon a dry shivery whin rock, the parts of which are separated by dusty fissures, ceases to vegetate in a few years, though the thin soil on the surface be good. There is also a kind of laminated clay, much disposed to dissolve with water, not favourable for this, nor any of the pine tribe. It succeeds very well, however, in most parts of the clay ground in the country, if care be taken to prevent stagnant water. It does exceedingly well on land covering the free stone rock: but the best timber is produced on hard dry gravelly soils.

The Siberian Pine, the Cedar of Lebanon, and some others of a similar nature, have been introduced with very little success. The short intervals of mild weather, which happen in the beginning of the Spring, excite them to vegetate too early, and the next cold blast destroys the young buds. The New-England pine thrives, in a tolerable soil, from 12 to 20 years, in proportion to the exposure; after which it generally begins to decay. The longest standing, and the largest, are on the low grounds near the house of Dalziel.

The Spruce is also unfit to weather the storm, on the greatest heights. It succeeds on the hard dry rock, where the Scots pine dies; but frequently decays at the end of 18 or 20 years, on stiff wet clay. Its most favourite soil is that which is dry and gravelly.

The Silver Fir thrives in clay soils, where the spruce fails; nor is it averse either to the hard rock or gravelly soil; but it makes no progress on any soil that is very poor. Unfortunately it frequently suffers severely from the frosty mildews of the Spring, particularly in its youth.

The Larix is now found to be the most hardy alpine plant. In most places it makes greater progress than almost any other tree; and there is scarcely any soil, that is not drowned with water, on which it will not succeed. It suffers most in too luxurious situations, where its soft shoots, unable to keep erect, bend away from the slightest gale.

The Birch is next to the larix in the progress of its growth, and equal to it, in ability, to stand the blast in alpine situations. The birch is superior in the plain. But in whatever situation it is placed, it delights most in a light soil and dry bottom. Notwithstanding, it thrives in moist soils, with very moderate draining.

The Ash, when it enjoys a sufficient depth of good soil, is capable of braving the storm, and pushing up its head, in the most exposed situations; but in a thin soil, covering a stiff argillaceous bottom, it can make no progress. It thrives well, however, in marshy soils, where the banks are steep, so that the water flows away without stagnating. This

is perhaps the most important wood in the country, being useful in all its ages, and for the most purposes.

The Mountain Ash is a hardy native, and has the same habits as the ash.

The Beech comes near to the ash in capacity of braving the storm, and has much the advantage of it, in thriving in poor or stiffer soils; but there are some barren argillaceous bottoms too much even for the beech.

The Sicamore and Elm require a light soil, and a dry open under stratum; and when this is the case, they thrive in a situation pretty much exposed.

The Oak is less patient of the blast than most of the trees of the forest. Being late in putting forth its leaves, it continues to grow till the season is far advanced; and the immature wood of its late shoots, unable to resist the piercing effects of the cold wind, in exposed situations, withers before the next Spring; so that, like Penelope's web, the progress of one season is undone in the following. The most favourable situations for the oak, therefore, are hollows or hanging slopes, where the sharp winds are broken by the neighbouring heights. In such situations, if stagnant water be avoided, it will thrive in the stiffest soils, and with its strong roots penetrate the densest bottoms. This tree, in coppice, is valuable on account of its bark, for the purpose of tanning leather. The bark of the mountain ash and fallow are used for the same purpose, but are only estimated at half the value. The birch bark, of late years, has been used for the same purpose. The oak, though slow of growth, has, in some situations, arrived at a great size. Among the oaks of Hamilton park (belonging to the Duke of that name) so famous in the last age, there were trees which measured 27 feet round the trunk, with a wide expansion of branches.

The Horse Chestnut tree thrives well on the lower grounds. The sweet chestnut, which quickly becomes a timber tree in districts more northern, does not succeed here. Its seasons of growth are too late, or too early for the climate. In

its first, it bears some resemblance to the Siberian pine, &c. ; in its last to the oak ; its early growths being almost as early as the former, and its latter being nearly as late as those of the latter, and still more soft and susceptible of the cold. Hence its shoots are alternately put forth and destroyed, and it generally becomes a low stunted shrub. But this does not seem to have always been the case. There was in the lower part of the parish of Cambusnethan, on the grounds of Mr. Lockhart of Castlehill, a tree of this kind, magnificently branched, and of a very large size, the stump of which still remains living. This seems to be a presumption of the truth of the conjecture advanced in the former part of this Report, that the natural accretion of flow mosses tended to increase the inclemency of the neighbouring climate ; since the annual addition which these mosses visibly acquire, in a district where they abound so much, may, in the course of two or three centuries, come to such an amount as to produce a sensible change in the state of the air ; while in district, where the extent of moss is inconsiderable, such effects do not take place. The fate of the walnut, which may be considered as much as a timber tree as a fruit one, is nearly the same with that of the sweet chestnut.

The Poplar delights most in water-formed soils, but is averse to marsh, and, when happily situated, makes quicker progress than any other tree. This county has been long in possession of two kinds of the white poplar, equally successful. Distinguishing them by their habits, they may be called the towering and the branching. The Lombard poplar, which, it has been said, becomes a large tree below the Trent, makes here but poor advances to timber. The balsam poplar makes very great progress.

In general, all the soils which lie immediately over the free stone rock, are much disposed to produce wood, and almost all kinds of trees thrive in them. Land lying on a quick declivity, where the water issuing from the veins of the earth flows freely away, is very favourable to the growth

of wood. For this reason, trees grow better on the dip than on the crop of the mineral strata. Trees, planted by the winds, or by the birds, seem to thrive better than those cultivated by man. Whenever they meet on the same ground, the advantage which the child of nature has over the child of art, is conspicuous. There is a kind of coarse moorish soil, generally lying upon a thin bed of watery gravel, with an impermeable bottom under it, on which no trees will thrive, till its faults are corrected. While the water below starves the roots, the close accumulation of heath and mosses on the surface deprives them of the benign influence of the sun and air, and they pine and die in a few years. To raise a plantation, in such circumstances, it is necessary not only to give the ground a slight draining, but to destroy the obscene growth upon its surface.

In concluding this part of the subject, it is proper to observe, that though woods succeed, every other circumstance being similar, better or worse in proportion to the elevation in the atmosphere in which they are placed, yet they succeed worse on the summits in low elevations, than they do in much higher situations, where there are still greater heights around. The reason of this is too obvious to require explanation.

CHAPTER VIII.

WASTES, WITH THE POSSIBLE IMPROVEMENTS OF THEM.

THERE is no land in this county over which the right of property is not claimed; but there are some high moorish grounds, not reckoned capable of any considerable improvement, on which the adjoining proprietors have a right of pasturage, according to some established proportion. If we call those lands wastes which, from the high elevation in which they lie, the poverty of their soil, the ruggedness of their surface, &c., have been considered as no farther beneficial to man, than on account of the sustenance which domestic animals can collect from them, the extent of waste land is very considerable,—nearly the half of the surface. But the wastes which are more peculiarly the subject of a work of this nature, are those enormous masses of peat earth lying in a more moderate elevation, and already described. The extent of these dismal fields, their uselessness, and the probability of their injurious effects on the country around, have been stated, and a despair expressed of any extensive reformation being made upon them. But what is beyond the powers of man, when properly exerted! One of those rare geniuses, the exertions of whose talents are extensively beneficial to society, has appeared in the adjoining county of Ayr, and put the art of reclaiming flow mosses into a train which may be carried to a vast extent, and prove an universal benefit to the nation. If, according to the sentence which a witty author of the last age puts into the mouth of his fabulous king of Brobdignag, “He who has made two ears of corn, or two blades of grass, to grow on the spot which produced only one before, is a greater man than all the politicians of the universe*,” what gratitude does the public owe to the man who has taught how many ears of corn, and how many blades of grass, may be

* Gulliver's Travels.

produced on those wide wastes producing none before? A particular account of the improvements on mosses comes more properly into the Agriculture Report of the county where they were first begun; and indeed the necessity of such an account is superseded, by a letter already in the possession of the public, from a gentleman of acknowledged ability, who has taken great pains to investigate and to state the different processes, and the result. But as every thing relating to a matter of such national importance ought to be recorded, it may not be amiss here, lest it should be omitted otherwise, to give some account of its origin. About 20 years ago, John Smith, Esq. of Swinrigmoor, in the parish of Dalry, then a youth, stung with the desire of military glory, left his property under the management of administrators, and went to gather laurels on the plains of America, leaving strong recommendations with his managers and tenants to cultivate some pieces of moss, hard by his house, by such means as were then known, in order to take away the unsightly appearance. The peace of 1783 put a stop to his military career, and he returned home to look after his private affairs, where he found that his recommendations respecting the moss had been little regarded. On one corner, however, which had been dug over, some lime in powder had been carelessly thrown, and some oats strewed. Here he observed, that wherever the lime had come, the oats sprung vigorously. Improving the hint thus given, he applied lime to moss, in various ways, and in different quantities, and by repeated experiments, found that a large dose of hot lime, applied to the wet surface of moss ground recently dug up, decomposed the parts with which it came in contact, and rendered a substance, formerly inert, highly fertile. He afterwards found, that raising potatoes the first year after liming, still increased this fertility, by the stagnation of the air under the cover of this broad leaved plant: but to raise abundance of potatoes, it was found necessary to give the moss a small quantity of dung also. The ability and diligence with which

Mr. Smith has conducted these experiments, his steady perseverance, in spite of the obloquy and ridicule of a prejudiced neighbourhood, and the happy issue to which he has brought these discoveries, do him great honour, and ought to place him high in the list of those valuable characters, by whose useful labours mankind have been benefited.

The operations performed in reclaiming moss, the expence attending them, and the general return obtained, are all accurately stated in the above mentioned letter, to which those who are about to improve mosses are referred. These operations are now begun in different parts of this county, and are conducted mostly by people not otherwise directly engaged in agriculture. It is probable, the novelty of the thing, the prospect of immediate advantage, and of rendering the ground more valuable in future, may induce others to purchase moss grounds, and follow the same example, so as to direct the employment of more capital towards the improvement of the country. A few loose hints, which occurred on a late survey of the reclaimed mosses in Ayrshire, shall, therefore, be here submitted.

The altitude of these mosses is not considerable, perhaps not more than 150, or at the most 200 feet above the level of the sea; but it seems evident, that moss may be cultivated for corn to any altitude in which it succeeds on the neighbouring fields; the corn on the mosses, though much more luxuriant, being nearly as forward as that on the hard ground around them.

Very slight draining appears to be sufficient in the first preparation, and levelling is not attended to. The crops were thriving where water was standing within 10 or 12 inches of the surface, and equally well on the hillocks and little hollows. The draining can be pursued gradually, as occasion requires; and levelling can be performed with much more ease in the future workings, as the parts of the moss are more separated by the effects of the time, labour, &c. The rough manner in which the moss is first turned over, seems not only to be sufficient, but preferable

to a more accurate execution, as more surface is exposed to the action of the lime, and of the weather, during the Winter. For these reasons, it is evident, that, if labourers were plenty, the first preparation of moss might be executed at a very moderate expence.

Lime being the agent by which moss is converted from an inert to a fertile state, this species of agriculture can only be advantageously pursued where lime can be procured at a moderate rate. The noble Lord, whose useful researches have been mentioned, was convinced, that moss could be rendered fertile by the application of alkaline salts; and he thought these could be extracted from sea water, so cheap and so plenty, as to be used for this purpose. Nothing of this kind, however, has yet appeared. The seat of the moss improvements in Ayrshire, is peculiarly happy, beds both of coal and lime approaching to the surface in different places. Lime is, therefore, administered in large quantities, and the success justifies the practice. But there is frequently much moss to reclaim, in places where lime is less abundant; and it would be of great importance to know if the purpose could be effected by a more sparing application.

Different spots were shown on which the lime had been applied in different states; and on those spots where it had been applied, when recently slaked and still hot and powdery, its effects were by far the most considerable. Hence it would appear, that the causticity of lime, which consumes the wet vegetable substances with which it comes in immediate contact, is its most important, though, perhaps, not its only effect. Might not, then, a less quantity, more accurately spread, as the dose was more sparing, and the causticity heightened by slaking it with boiling water, (which, in a coal country, might sometimes be done with little inconvenience or expence) decompose enough of the moss to make it fertile? In Ayrshire, after administering lime largely, a crop of potatoes, and four or five crops of oats, are taken without intermission or recruit. Where lime is scarcer, it might be frugal to administer it in small quantities, and

more frequently; for example, a part for the first and a part for the third crop: and in this manner, new surfaces being exposed by every turning, it may be presumed that a less quantity of lime would decompose more moss.

Where the lime had not been applied till it had become cool and damp, the crops, though much inferior, were incomparably better than could have been produced without some such application: and, consequently, it may be presumed, that lime, besides its corrosive quality, possesses others tending, in some degree, to fertilize moss. And this, perhaps, is accomplished, not only by the calcarious substance, but by the effect which the particles of sand and clay, accompanying lime, have in consolidating the surface. To make up for the scarcity of lime, therefore, the schyftus, mentioned under the head on manure, might frequently be applied along with it. Proofs of the good effects of this may be seen in the parish of East Monkland.

Besides fertilizing moss by means of lime, the surface, after being in some measure reduced to mould by the operations, might be carried as a manure to the solid grounds around, with great advantage; and thus the fertility of all the fields in the neighbourhood might be increased, in a very high degree, without impairing that of the mosses, which having always plenty of depth, would be as fit for the action of lime as ever; and the surface of one acre of moss would be more than sufficient manure for six acres of firm ground.

But mosses may be profitable for grass, as well as for corn fields. It is represented in the letter above mentioned, that after the culture of corn is abandoned, on account of the superabundance of esculent grasses which spring up amongst it, by the addition of rye grass seed along with the last corn crop, a plentiful crop of hay, for the first year, is produced, and the pasture for succeeding years is worth 25 s. per acre. The truth of this statement is not at all questioned; but it is evident, that none of the fields of moss, which have been cultivated for corn, and are now in grass, are brought to the best possible state for grass grounds; and there is a probability, that a little more attention to the culture of grass might

be accompanied with success. It is probable, also, that a close cover of esculent grass would greatly facilitate the operation of any new application of lime, to increase still farther the fertility of mossy ground; the residue of such herbage on the surface, and its living roots spread through the soil, being much more susceptible of the putrid fermentation, than the dead plants of which the soil is originally composed.

Although complete draining at the first, while the great clods still adhere, and might wither too much in the Summer's drought, freely admitted into the interstices between them, be neither necessary nor proper, it should certainly be pursued as the decomposition of the mossy substance takes place, that by the time the surface becomes fit to retain a sufficient quantity of the falling moisture, it may be freed from the injury of the surplus stagnating in it. There seems to be a want of this complete draining in the late improved mosses which are now in grass. The turf, though thick in some places, is not regular; nor does the herbage appear to be very palatable to cattle. More accurate draining, and condensing the surface by repeated rollings, and spreading argillaceous substances upon it, would certainly improve the turf. If the drains were covered ones, and the surface well levelled, wherever springs on higher grounds were at command, there is, perhaps, no case in which watering, so much recommended of late, could be more easily and successfully practised.

But it would be necessary that these grounds were also replenished with the most proper grasses. The grasses of the culmiferous kinds, observed on them, were chiefly the grass called *poa purpurea*, and the soft millet grass (*polcus lanatus*). Neither of these are much relished by cattle, or believed to be of the most nourishing quality, though eaten occasionally. The foxtail, (*alopecurus arvensis et pratensis*) the sweet scented early meadow grass, (*anthoxanthum*) and the *poa pratensis*, would make a valuable addition. They are our best native grasses, and being all frequent, there would be no difficulty of gathering their seeds, and propagating them to any necessary extent. White clover appears in

some place, which indicates that it may be farther propagated by sowing its seeds. The daisy, silverweed, crow-foot, &c. make up the list of the moss herbage, the place of all which would be much better supplied by the cow grafs of the English farmers, (*trifolium pratense*) the stringy roots of which enables it to take a fast hold of the soil. It is believed, that improved moss thus drained, condensed, and stored with proper herbage, would be inferior to no other soil in the production of grafs.

There is much mossy ground in this county, of too great elevation to encourage the cultivation of it for corn; yet its situation and circumstances are such, that, probably, lime might be applied to it with great advantage. It will be sufficient to give one instance, which will apply in all similar cases. Through the parishes of Lesmahagow, Douglas, and Crawfordjohn, there is a tract containing vast beds of excellent lime stone. Among the wild sheep pastures of the same country, there are large fields, the general surface of which is tolerably regular, and the acclivities very moderate, and at the same time the bottom not very soft or miry; but being always drenched with the stagnant water retained on the surface, bear only herbage of the coarsest quality, furnishing neither plentiful nor nourishing pasture. In the wide sheep pastures on the S. E. corner of Scotland, and those of England immediately bordering with it, where all the branches of the business of shepherdism are well understood, and diligently pursued, the active and intelligent occupants of sheep farms have, for some time, been in the custom of drawing small drains through all the moist parts of their pastures, to lead away the superfluous water which arises from springs, or descends from the hills in rains; and the general opinion is, that great benefit is derived from this practice. Were the same followed with the fields in question, and hot lime spread upon them, the coarse herbage would be consumed, and white clover and other sweet graffes soon appear in its room, which would probably render one acre of this pasture more valuable than six in its present state.

CHAPTER IX.

LIVE STOCK.

SECT. 1.—*Cattle.*

THE number of oxen kept in this county is inconsiderable. Exclusive of those which are casually brought in, to fatten on the Summer's pastures, or on turnip, the whole, perhaps, does not exceed 200. Milch cows, and young females rearing to supply them, are the principal stock. The whole may amount nearly to 30,000.

The neat cattle of this county are a mixture of many breeds, very different in figure, size, and proportions; many of them, perhaps, very ill adapted to the nature of the country. So far as attention has been paid to breeding, milk rather than beef seems to have been the object; and this object, perhaps, has not always been pursued with the greatest judgment. There are, however, exceptions to this stricture. Experience has shown, that cows of a bulky carcase are fit only for rich pasture, firm ground, and a sheltered situation. Those of a smaller size pass more easily over a soft soil,—are more active in collecting their food, on meagre pastures;—and, as they require proportionally less food,—have as many teeth, and jaws fully more nimble,—have less trouble in ruminating the necessary quantity of dry fodder, and keep themselves in good habit at all times. Hence it is, perhaps, that small cows, though they give less milk at a time, generally give it of a richer quality, and for a longer continuance, than large ones. Upon these principles, handsome cows, weighing from three to four hundred weight the four quarters, when fat, are bred in different parts of the county; and more attention has been paid, of late, to obtain the desired appearance. The colour is mostly brown, with spots of white, the hair thick set, soft, and sleek, the head and neck lean and slender, the ears small and neat, the

limbs short, small and clean boned, the chest rather round than deep at the heart, the shoulders, and more especially the loins, broad and square, the back, from the shoulder to the descent of the rump, quite straight, the tail long and small. Some aim at having cows without horns; but when there are horns, they are small at the root, not long, and pretty erect.

This valuable breed of cattle are in greater perfection in the northern district of Ayrshire, and the neighbouring county of Renfrew; and it is probably from thence they are derived; numbers of young cows, from these quarters, being brought for sale to the fairs of Rutherglen.

SECT. 2.—*Sheep.*

In all the lower parts of the county, inclosing has, in a great measure, banished sheep; and that kind, of which the little flocks on the low ground was formerly composed, is now lost. Whether this is a disadvantage or not, it is impossible now to determine. Where inclosures are made defensible, it is not uncommon to feed sheep, bought in from breeding districts. These are either ewes and lambs, or wedders, mostly the former; but it is difficult to make a computation of the numbers which are so fattened annually. A few tame sheep are still kept on some of the low grounds, mostly mixtures of the Dishly breed, less or more degenerated. But the business of sheep pasturing is chiefly exercised in the wild and mountainous parts. The sheep are of that kind, distinguished by shepherds under the name of the short moor sheep. They are so well known, that any attempt to describe them would be superfluous. Long experience has shown that this animal is well adapted to the situation in which it is found: but it has been much regretted, that so little benefit is derived from the fleece as a material of manufacture. Great hope was entertained that the patriotic exertions of the British Wool Society would have made considerable improvements in this respect. But a number of obstacles stand in the way which cannot be

easily surmounted. A few of these, set forth by some of the most intelligent sheep farmers in this county, shall here be stated. 1st, The decided preference which the Yorkshire jobbers (the principal purchasers of surplus stock) give to short sheep, choosing even the roughest wooled, and buying them at a higher price than those of equal size with a finer fleece. Thus what is lost in the value of the wool is gained in the sale of the stock; and shepherds are tempted to degrade rather than ameliorate the wool, by introducing rams of the coarsest fleece to the breeding ewes. 2^{dly}, The demand for coarse wool is greater than for fine; and when the market is dull, the sale of the former is readiest. From this state of the wool market, it is more the interest of sheep farmers to increase the quantity, than to improve the quality of wool. 3^{dly}, Sheep always thrive best on the ground on which they have been bred perhaps for some generations: and, therefore, it is thought imprudent to dismiss a known flock, and bring in a new one; experience having shown, that immediate disadvantages frequently attend such a step; whereas the advantages are more uncertain and remote.

This useful animal is subject to various diseases, the most fatal of which are the rot and the braxy. Scarcely any effectual remedy has been found for either. A very intelligent sheep farmer strews the branches of the Scots pine on the pastures of the sheep of the first year, (to which the latter disease is chiefly incident) upon which they browse; and he has found this a considerable preventive of the disease. If the regular study of the veterinary art were more common, the practice of medicine among domestic animals, whose manner of life is more simple and natural than that of man, might perhaps be more easy and successful. At least it seems worthy of public attention, to make fair experiments, in order to discover if any better means can be found for saving the lives of this and other useful animals, than the quack nostrums of ignorant and superstitious people.

The number of the standing stock of sheep in the whole county is about 120,000.

SECT. 3.—*Horses, their use in Husbandry compared to Oxen.*

There are a great number of horses, of the draught kind, bred in this county. The number employed in agriculture, with the young ones rearing on the different farms, amount altogether to about 8000. The number of those kept for pleasure, for travelling, for the carriage of goods, &c. is not ascertained, but is certainly very considerable.

The draught horses of Clydesdale have long been in high estimation, and are so well known, that a description of them would be unnecessary. Dealers from different parts of England come to the Glasgow and Rutherglen markets to purchase them, and prefer them to the Derbyshire blacks. Those of the upper ward, where the greatest number are bred, are esteemed the best. They have been sold, of late, in the Lanark and Carnwath markets, at three years old, from 20 l. to 30 l. and upwards. They have been much improved of late, and are still improving, especially in size and weight.

Formerly oxen were used in tillage, in different parts of this county; but when the progress of civilization demanded better roads, and better roads were, of course, obtained, husbandmen began to make more frequent use of carriages, and to greater distances. From the first origin of carriages in the county, there seems to have been a predilection for the single horse cart, the propriety of which has been justified by more experience. In consequence of this, the horse, which was not only the most ductile and expeditious animal, but whose hoofs were best adapted to receive an armature fit to defend them against the injuries of rough roads, obtained a general preference. The farms being small, one set of animals for home, and another for distant work, could not be kept; and thus the ox, being the least generally useful, has been gradually dropped. The use of oxen in the plough is not yet entirely abandoned. Along the

eastern border of the county, they are still employed in that draught. But as a pair of oxen are joined in the same plough with four horses, to do what the horses might very well perform without them, the oxen seem to be little better than an useless incumbrance. What a pity that those useful animals should be either abandoned, or so unprofitably employed!

Some gentlemen have again begun to use oxen for all the purposes of draught. The Right Honourable Lord Douglas always works a few; and, at his Lordship's desire, his manager communicated the following comparative statement of the importance of the horse and the ox in labour, at the time the former Report was printed; and though the money value of both animals is different from what it then was, it shall here be stated in the same terms.

An ox at the price of 7*l.* 10*s.* is equally strong in draught with a horse at 20*l.*, and equally fit for the plough, cart, or harrow.

The ox requires one-fourth less fodder than the horse, and only a little unthreshed oats, from an eighth to a sixth of what is requisite to support the horse; and if 14 pounds of raw potatoes be given to the ox in a day, he will need no oats, and not consume more than half the fodder eat by the horse.

The ox may be wrought from four to ten years of age, and still increase in size, and be capable of carrying more flesh, when he is turned to fatten; whereas the horse, in that time, will lose one-fifth of his price.

The ox may be turned to pasture in Summer, as soon as he is taken from the yoke; and will gather his own food, without needing any corn or attendance.

The ox is as much fatigued with seven hours work in the day, as the horse is with eight; and the execution of the ox is scarcely more than four-fifths of that of the horse, in the same time.

After the ox has filled his belly, he must have time to ruminate, and therefore cannot be baited, and put to work a

second time the same day, like the horse, without being greatly injured.

From this view of the matter, it seems evident, that oxen could not be advantageously put to all the purposes of labour now done by horses; but, at the same time, there might be a great saving made by using them in part. To give one short example, for the sake of illustration; On a farm where there was frequent occasion to plough stubborn land with a deep furrow, a pair of oxen might be very properly joined to a pair of horses in one plough, for that purpose. When less strength of draught was requisite, the horses and oxen might be wrought separately; or in any case where distant carriages were necessary, when a longer continuance at work was required than was suitable to the nature of oxen, or the state of the roads unfavourable for their feet, the horses might be employed in such, while the oxen were forwarding the work at home. The saving which would accrue from the difference of the first cost of oxen and horses, the difference of the expence of maintenance, &c. of the two animals, avoiding the fall of price by the sale of horses, and the total loss of them by incurable lameness, &c. is left to the calculation of the reader, and will appear so considerable, that it is probable the partial use of oxen needs only to be fairly introduced to become general: and thus the ox would be restored to his real importance, and be found no less valuable as a labouring than as a feeding animal.

SECT. 4.—*Inferior Stock.*

Besides the kinds of live stock above enumerated, scarcely any other can be said to be an object of attention among the husbandmen of this county. A kind of Jewish abhorrence of swine seems to have taken place, about the rigid times of the Reformation, in the western counties of Scotland. They were unclean beasts,—it was sinful to eat their flesh,—and neither creditable nor profitable to keep them. And though these prejudices are now pretty much worn out, pork is not yet, in general, a favourite food, and, of

course, the numbers of hogs kept and fed are not considerable. Country gentlemen frequently keep a small piggery to serve their own tables; and some few pigs are bought in by farmers, in different parts of the county, to consume the whey of the dairy in Summer, and are fed upon potatoes, &c. in Autumn. To serve this demand, some people find their account in keeping brood swine. But whey is now much used in printfields, as an acid, and the farmers in the neighbourhood of Glasgow sell their whey there for that purpose.

There is no rabbit warren in the county, but one belonging to his Grace the Duke of Hamilton; and from a single instance in a great tract of country, and subject to the inroads of every kind of depredatory vermin bred in the neighbourhood, no fair inference of the value of warrens can be drawn. But it may be said, that rabbit warrens, and the cultivation of a country for corn, seem to be somewhat incompatible.

Geese and turkeys are bred mostly by people of fortune, for the sake of variety at their tables.

Dunghill fowls, and sometimes ducks, are found in all the farm yards of the county. The former, particularly, are equally inimical to the kitchen garden and the corn field, both in Spring and Autumn; and for that reason are commonly the detestation of husbandmen, who think the injuries they do at these times are greater than all the value they yield through the year. The housewife, however, reckons most on the profit and conveniency of fowls and eggs, which of late have sold very high; and under this favour they are sheltered and preserved. A fowl has a great appetite, and if it received all its food from the hand, would soon consume its own value; but as they pick up much of what would otherwise be lost, and make an agreeable variety at the table, they are a conveniency, the want of which would be much felt. But the profit arising from keeping them cannot, upon the whole, be considerable.

Pigeons are considered by husbandmen as a nuisance, and

the laws by which pigeons and pigeon houses are protected, giving one class of men the privilege to let loose a flight of animals to prey upon the property of another, as grievous and degrading. The injuries done by pigeons are very considerable, but they last only for one month in the year; that is, from the time the corn has begun to ripen till the harvest home. One would think it reasonable, that the same laws which bestowed this privilege, should have obliged those on whom it was bestowed to provide plentifully for their pigeons during that month. If this were done, it would not be difficult to scare them from the corn fields. At all other times pigeons are not very hurtful. In seed time, as they neither turn up with their bills, nor scratch with their claws, they devour no part of the seed, but that which has been left uncovered. In Winter, their craws are found crammed with the seeds of weeds which infest corn fields; and, in this instance, they may be presumed to be of some service to husbandmen: but it appears to be very inconsiderable indeed; for the fields to which they have ofteneft resorted, in Winter, have still too many weeds next Summer. Rooks are regarded by husbandmen pretty much in the same light as pigeons. In harvest they are not much less destructive, and in seed time much more so, as they turn up, with their strong bills, and devour the seed, both before and after it has begun to vegetate. The only compensation they make, is picking up some of the small earth vermin, after the plough. They are not protected by the same laws as pigeons, but the proprietors of plantations where the rooks nestle, may, and sometimes do, prevent people from going into these plantations to destroy them. There is little reason, however, to complain of the proprietors of this county, many of whom having not only allowed, but encouraged the destruction of rooks. It is a matter which merits general attention, as the numerous plantations in the county afford room for so many new colonies of rooks, that they would increase in an alarming degree, if pains were not taken to destroy them.

Husbandmen are too much engaged otherwise to attend to the apiary, and of course there are not a great many hives of bees kept by people of that description. There is no doubt but bees are profitable at times, when they succeed : but the greatest part of the information got from bee masters, here, consisted of long accounts of their losses by the death of bees in bad years, and by the theft of hives in good ones.

CHAPTER X.

RURAL ECONOMY.

THE title of this chapter, taken in its large sense, may be understood to comprehend the conduct of the husbandman in the course of his business, through all the varied seasons of the year. But as it has been the chief business of this work, after giving some description of the face of the county, to represent what was doing in the cultivation of it, it is presumed the subject is pretty much exhausted. However, such gleanings as remain shall be here collected; and these will easily comprise any miscellaneous topics relating to agriculture, and anticipate the purpose of a chapter of that kind. This chapter will therefore contain the following sections; viz.

1st, Agricultural societies, showing the means followed by husbandmen for their mutual instruction and support.

2^d, The weights and measures used for ascertaining the quantum of things relating to a farm.

3^d, The prices of the different commodities produced from farms.

4th, The labourers employed in agriculture,—hours of labour,—price, &c.

5th, Their accommodation, such as food and fuel.

SECT. I.—*Agricultural Societies.*

Husbandmen, as a class of men, are less connected than any other of which the general mass of society is composed. There is no bond of union to conjoin them for the general interest of their order—no rallying point around which they can assemble for their mutual support: consequently, insulated husbandmen can never match in contest with the members of any other class of society. This assertion will be derided by superficial observers; but, it is presumed, will scarcely be refused by any person of candour, who soberly considers the matter. It may be attributed, in part, to their

dispersed situation, and sequestered manner of life, but still more to the unjust prejudices, which have long and strongly obtained among the other classes, and the laws and customs founded on these prejudices, tending to depress and discourage them; and not to any contracted selfishness of disposition attached to the profession. On the contrary, we find no class of men so liberally disposed to assist one another in forwarding their mutual labours, or in relief of the emergencies which occur to an individual; and none so free in communicating such knowledge as they possess, for the benefit of their brethren.

For such purposes, several societies have been instituted in different parishes or other districts of this county. Some are of a considerable standing, and some more recently formed. The members of these meet at an agreed place, perhaps once a month, where they converse about the operations in agriculture, in which they have been employed, and the success attending them. A subject of discussion is also proposed at one meeting; and the members take it into consideration, and deliver their opinions at the subsequent one. There are instances of members of some of these societies attending the lectures on agriculture given by Dr. Coventry at Edinburgh, as well for the instruction of their society as for their own. They speak highly in praise of this gentleman's labours.

Some of these agricultural societies have still another object. A stock purse is formed by stated contributions paid by all the members, out of which some relief is given to persons, connected with the society, who may fall into accidental distress.

A corresponding agricultural society has been lately established at Glasgow, upon a large scale. The members already admitted amount to several hundreds, and are still increasing. Each member, upon his admission, contributes a guinea to the common stock. The society, at their general meetings, are to elect certain annual office-bearers, and appoint a committee to assist them. These are to keep up a

correspondence with the lesser societies around, receive such communications as they may send, and return copies of such as are received from other quarters, &c. The stock is to be lent out on interest, only to husbandmen who are members of the society.

SECT. 2.—*Weights and Measures.*

The Dutch and Trone weight, the only kinds used in rural commerce, in this county, are described in the Mid-Lothian Report. The proportion they bear to avoirdupois weight, is the same in this as in that county. Meal only is sold by the former; butter, cheese, wool, flax, butchers meat, and hay, by the latter.

Eight lib. make a peck, 16 pecks a boll of meal; 16 lib. of butter, cheese, flax, wool, and hay, make a stone, 12 stone of wool a pack. Though there is a clause almost in all leases, to restrain the farmer from disposing or carrying off fodder from the farm, hay, being rather a new product, is not understood, and there is always a great deal of hay sold by farmers. Five stone of hay is nearly equal to a hundred weight, and consequently 100 stones near a ton. Though common farmers are not allowed to sell straw, there is always much straw bought and sold; and the most accurate way of ascertaining its value, which is now frequently resorted to, is to weigh it as hay.

It would be by far the most just and accurate way of ascertaining the value of grain of all kinds, to weigh it, and should certainly be used in all cases.

Lineal, square, and liquid measure, are the same here as described in the Mid-Lothian Report.

In the dry measure, used in the sale of grain of all kinds, a boll contains four firlots, a firlot four pecks, and a peck four forperts or lippies; 16 bolls make a chalder. The firlot used to measure barley and oats, is almost one half larger than the firlot for measuring wheat, beans, pease, &c. Both these measures are about one-sixteenth larger than the Linlithgow standards of the same denominations. But for

more than 30 years past, wheat has been bought and sold by the Linlithgow standard, which is now attempted to be introduced for other grains.

In the lower parts of the county potatoes have been measured, for these 40 years, with a dish of the shape of a cask, the peck measure holding 15 Scots pints; its full of potatoes, recently dug, weighs 43 lib. avoirdupois. In the higher parts of the county potatoes are sold by the barley measure.

The peck, or sleek, for measuring pears and apples, holds about 18 pints. The confusion occasioned by the irregularity of weights and measures, is too obvious to require any comment.

[SECT. 3.—*Prices of the Commodities produced from Farms.*

The commodities derived from farms are either the materials of manufacture, or provisions for man and subservient animals. Both these are either obtained directly by means of cultivation, or indirectly from the animals supported on farms. The money price of provisions, of the first kind, have not risen in proportion to the articles which enter into the cost of raising them; and indeed the price of the former seems scarcely to have been affected by the rise of the latter, but fluctuated only on account of temporary starts of scarcity or plenty. In the course of the last 40 years, land rent, the wages of labour, the price of labouring horses, &c. is nearly tripled, but the price of grain has seldom been much lower during that period, than in the beginning of the present Summer, 1797. On the other hand, the last kind of provisions, which require less additional cost of labour, has been regularly upon the rise, and the price is tripled, and in some instances quadrupled, in the above period. The current prices of the materials of manufacture seem more to resemble those of the first than of the last kind of provisions.

Price of Moorland wool, from 6s. to 8s. per stone.

Flax, from 10s. 6d. to 1 l. per ditto.

Butter, from 16s. to 1 l. per ditto.

Price of New milk cheese, from 8s. to 9s. per ditto.

Skimmed milk ditto, from 6s. to 6s. 6d. per ditto.

Butcher meat of all kinds, from 7d. to 10d. per lib.

Fowls, from 2s. 6d. to 3s. per pair.

Eggs, from 6d. to 1s. per dozen.

Hay, from 5d. to 8d. per stone.

Straw sells at from one-half to two-thirds the price of hay.

The above are nearly the prices at which different articles have sold in the lower part of the county, during the last twelve months.

The following table of fiars, or medium prices, will give the best idea of the price of grain. It contains only the prices of oat-meal and barley. The price of a boll of wheat may be computed to be nearly equal to that of a boll and an half of oat-meal. There are four different offices in the county, at which proof of the prices are annually taken; viz. the commissary's of Glasgow, the university's, the commissary's of Hamilton and Campsie, and the commissary's of Lanark.

of the Fiars

1st Period.

1737

1738

1739

1740

1741

1742

1743

1744

1745

1746

1747

1748

1749

1750

1751

L.

Aver. of
1st period L.

2d Period.

1767

1768

1769

1770

1771

1772

1773

1774

1775

1776

1777

1778

1779

1780

1781

L.

Aver. of
2d period L.

OF CLYDESDALE.

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TABLE,

of the Fiars of the Commissariat of Hamilton and Campfy, for Oat-Meal and Barley, for the following 60 Years, in four Periods of 15 Years each.

1st Period.	Meal.	Barley.	2d Period.	Meal.	Barley.
	L. s. d.	L. s. d.		L. s. d.	L. s. d.
1737	0 10 0	0 8 11 ⁶ / ₁₂	1752	0 14 5 ⁴ / ₁₂	0 13 8 ¹ / ₁₂
1738	0 10 0	0 9 7 ¹⁰ / ₁₂	1753	0 13 8	0 13 2
1739	0 12 6 ⁸ / ₁₂	0 12 9	1754	0 11 0	0 9 6 ¹¹ / ₁₂
1740	1 0 0	0 17 11	1755	0 13 10 ⁸ / ₁₂	0 12 1 ⁶ / ₁₂
1741	0 9 8	0 9 8 ³ / ₁₂	1756	0 18 11	0 17 2
1742	0 8 4	0 8 7 ³ / ₁₂	1757	0 15 0	0 13 8 ² / ₁₂
1743	0 7 0	0 7 6 ⁶ / ₁₂	1758	0 10 0	0 8 6 ⁸ / ₁₂
1744	0 10 5	0 9 11	1759	0 9 8	0 9 8 ⁵ / ₁₂
1745	0 16 2 ³ / ₁₂	0 15 3 ¹ / ₁₂	1760	0 10 4	0 9 7 ⁷ / ₁₂
1746	0 11 0	0 11 1 ⁹ / ₁₂	1761	0 12 0	0 10 6 ⁸ / ₁₂
1747	0 9 0	0 9 5	1762	0 17 4	0 13 11 ⁸ / ₁₂
1748	0 10 0	0 10 8 ⁶ / ₁₂	1763	0 13 0	0 14 4 ⁶ / ₁₂
1749	0 10 6 ⁸ / ₁₂	0 9 0 ⁴ / ₁₂	1764	0 15 4	0 13 10 ⁴ / ₁₂
1750	0 11 8	0 10 7 ⁴ / ₁₂	1765	0 18 0	0 18 3 ⁴ / ₁₂
1751	0 15 1 ⁶ / ₁₂	0 13 4 ⁶ / ₁₂	1766	0 18 0	0 19 9 ⁸ / ₁₂
L. 8 11 6		L. 8 4 6 ¹⁰ / ₁₂	L. 10 10 7		L. 9 18 2 ³ / ₁₂
Aver. of 1st period	L. 0 11 5 ¹ / ₁₂	L. 0 10 11 ⁷ / ₁₂	Aver. of 2d period	L. 0 14 0 ⁵ / ₁₂	L. 0 13 2 ⁶ / ₁₂

3d Period.	Meal.	Barley.	4th Period.	Meal.	Barley.
	L. s. d.	L. s. d.		L. s. d.	L. s. d.
1767	0 16 0	0 15 0 ⁶ / ₁₂	1782	1 1 4	1 1 0
1768	0 13 8	0 12 2 ⁴ / ₁₂	1783	0 16 8	0 15 0
1769	0 15 9 ⁴ / ₁₂	0 15 4 ¹ / ₁₂	1784	0 16 0	0 14 8
1770	0 15 8	0 15 6 ⁵ / ₁₂	1785	0 13 8	0 11 9
1771	0 15 10 ³ / ₁₂	0 16 4	1786	0 15 3 ⁴ / ₁₂	0 11 4
1772	0 17 9 ⁴ / ₁₂	0 17 1 ¹¹ / ₁₂	1787	0 15 10	0 12 1
1773	0 17 0	0 16 11 ⁸ / ₁₂	1788	0 13 9	0 12 6
1774	0 15 4	0 16 3 ⁶ / ₁₂	1789	0 14 6	0 14 5 ⁶ / ₁₂
1775	0 13 0	0 13 9 ⁶ / ₁₂	1790	0 16 6	0 12 8
1776	0 14 0	0 12 0	1791	0 16 0	0 15 0
1777	0 14 4	0 12 2	1792	0 17 5	0 17 4 ⁶ / ₁₂
1778	0 14 8	0 12 4	1793	0 17 6	0 15 4 ⁹ / ₁₂
1779	0 12 4	0 10 8	1794	0 17 0 ⁴ / ₁₂	1 0 9 ⁴ / ₁₂
1780	0 15 4	0 11 11 ⁴ / ₁₂	1795	1 1 1	1 3 3
1781	0 14 0	0 12 8 ² / ₁₂	1796	0 16 7	0 18 11 ⁴ / ₁₂
L. 11 4 8 ¹⁰ / ₁₂		L. 10 10 6	L. 12 9 1 ⁸ / ₁₂		L. 11 16 2 ⁵ / ₁₂
Aver. of 3d period	L. 0 14 11 ² / ₁₂	L. 0 14 0 ⁴ / ₁₂	Aver. of 4th period	L. 0 16 7 ¹ / ₁₂	L. 0 15 8 ¹⁰ / ₁₂
(in which there have been two years of remarkable dearth.)					

SECT. 4.—*Labourers employed in Agriculture,—Hours of Labour,—Price, &c.*

It has been already said, that the greatest part of agricultural labour is performed by servants hired by the half year, and living in the farm houses. In many parts of the County, the women servants work along with the men, at almost all kinds of out-work. But as more hands than ordinary are needed for cutting down the corns in harvest, many husbandsmen, to secure a fixed number for that purpose, when they can be got, contract with villagers to assist during the time of reaping. All these labourers have no fixed hours, but continue their labours while light and weather admit, and circumstances require. The poor girls, when light is gone, and the men sat down by the fire, resume their household labours.

The wages of men servants, besides bed, board, and washing, is from 13 l. to 16 l. per annum; of a maid servant, from 5 l. to 7 l.; of a harvest man for the reaping season, perhaps four weeks, besides food, 1 l. 16 s.; of a harvest woman for the same period, 1 l. 10 s. Labourers, both men and women, are sometimes hired in by the day, particularly in the times of planting, sowing, and hoeing turnips and potatoes, hay making, and harvest, when a fixed number are not provided. These work only 10 hours in the day, beginning at six in the morning and stopping at six at night, and taking an hour to rest at breakfast, and another at dinner. Hired labourers, in Winter, take breakfast before they go out in the morning, make a short pause to eat a little at mid-day, and quit when light fails in the evening. All labourers have improved in dexterity and execution, but have lost much of the conscientious anxiety to forward the work in hand, which formerly appeared; and having too much of the disposition of the hireling who longs for the going down of the sun, it is doubtful if they do more work than formerly. Day labourers mostly provide their own food.

A labouring man's wages, at ordinary work, is from 1s. 4d. to 1s. 6d. a day; a woman's, 9d.; a mower, 2s. 6d.; a harvest man, 2s.; a harvest woman, 1s. 6d.

Work by the piece is too often deficiently executed, when opportunities of slighting offer. When this can be avoided, it is, no doubt, the best way for both parties. The prices differ so much with circumstances, that it would be difficult to describe them with accuracy. It is sufficient to say, they are in general a good deal higher than those mentioned in the Mid-Lothian Report. But, notwithstanding, all work, the execution of which could be safely intrusted in that way, was always cheaper done by the piece than by day labour, till within these few years, that the war, and other circumstances, having swept away the labourers, competition is destroyed, and an undertaker can always contend for his own price.

SECT. 5.—*The Accommodation of the Labourers in Agriculture, respecting Food and Fuel.*

Oat-meal, potatoes, and milk, either skimmed or butter-milk, are the principal component parts of labouring people's food in this county. The servants maintained in farm houses, always breakfast on a kind of hasty pudding, made of oat-meal, well known through all Scotland, and some of the northern parts of England, by the name of porridge. This is eaten mostly with butter milk, and is not only wholesome and nutritious, but very grateful to the stomach of all who have been habituated to it. The bread is either thin unleavened cakes of the same meal, baked on an iron plate hung over the kitchen fire, called the *girle*, or bread made of pease or barley-meal prepared in the same manner. Farmers, for the use of their families, salt up beef in the month of November. A portion of this is boiled twice or thrice a week, so long as it lasts, in broth, in which hulked barley, cabbage, greens, or other culinary vegetables of the season, are mixed. The broth and beef make the dinner, while they last; and cheese, and sometimes butter, &c. are serv-

ed in the intermediate days. Potatoes are often used in place of bread ; and they, or porridge, with milk, make the supper. Butcher meat is less frequent in Summer, when milk is plenty, but is always provided in harvest. Herrings, sometimes fresh, but more frequently salted, make also a part of the provisions.

It may well be supposed that day labourers, who have not only themselves, but generally families to provide for, are less plentifully fed than farmers servants ; but their manner of living, so far as they can attain, is pretty much the same. Very little butcher meat is consumed in their families. Herrings and potatoes make a frequent meal. When circumstances admit, those who can afford it keep a cow, sell part of the milk, and consume a part at home. Tea and wheat bread are the prevailing luxuries among the lower ranks. Few are the luxuries of the poor ! and it would be cruel to grudge them such as they can attain. Yet it is to be regretted that the use of wheat bread is become so general among them. The Scottish nation has long found a wholesome support in oat-meal. Oats require less cultivation, and can be raised in much greater quantity than wheat ; and consequently the supply must be more liberal, when the former, rather than the latter, is the chief basis of food.

It has been already shown, that coal is abundant through a great part of the county. The material of peat is not less so ; and peats were formerly made by all the inhabitants residing near the mosses : but they are now too much engaged otherwise to spend their time in making peats. And though the price of coals, including carriage, is tripled within these 40 years, they are found the cheapest, as well as the best fuel ; and the use of peats is almost abandoned, except in the upper parts of the county where the coal is most distant.

CHAPTER XL

POLITICAL ECONOMY, AS CONNECTED WITH, OR AFFECT-
ING AGRICULTURE.SECT. I.—*Roads.*

THE first Scots statute which provides for the making and upholding of public roads, is that of Charles II. anno 1669. cap. 16. This statute ordains, That all tenants and cottars shall be called out on the highways, with all their carts, sledges, spades, shovels, picks, mattocks, &c. to work six days in the year, between bear seed time and harvest, for three years, and four days in the year ever afterwards. To make up the deficiency which this strength might not be able to effect, heritors are authorised to assess themselves to a certain extent, in proportion to their property, to be laid out in building and repairing bridges, &c. This law, which has been somewhat modulated and altered by after statutes, is the basis of the regulations for making and mending roads. It was no doubt the readiest expedient for the purpose; and, perhaps, in the then circumstances of the times, there might have been difficulty in finding a better. It favours strongly, however, of the barbarous notions of feudal times, when the most useful class of society were regarded as slaves, subservient to the pleasure of their superiors. And it seems to be equally impolitic and unjust, to abstract from its proper purpose so large a portion of the labour destined for the cultivation of the country, and to lay on one particular class the burden of making roads intended for the general benefit of the whole society. Husbandmen appear to have always regarded the statute work laws in this light, and thus contracted such an aversion to the duty imposed by them, that it has been, for the most part, very reluctantly and slovenly performed; and, accordingly, the roads were never in condition to answer the purposes of internal commerce. As that began to extend, therefore, some new expedient became necessary, and turn-

pike laws, which, in a more equitable way, lay the burden of making and maintaining a road on passengers, in proportion to the use they make of it, were introduced. But this regulation by no means lightened the burden formerly imposed on the cultivators of land. While the husbandman, like others, paid his tolls on the turnpike road, he was still liable in the old statute duty. In some instances, indeed, manure for land was exempted from tolls; and at length new acts were obtained to convert the statute labour into money, and commutations were accepted, moderate when compared with the present value of the labour.

The making of roads is the first step towards the improvement of any country; and, in a country where the soil is naturally soft and retentive of water, no improvement can take place, till good roads of communication are made. Accordingly we find that the progress of agricultural improvement has uniformly followed the making of roads in this county. Turnpike roads were first introduced about the year 1755, in making the road between the cities of Edinburgh and Glasgow, by the Kirk of Shotts, and by Hamilton to Ayr; and though on account of the total ignorance and inexperience in the business, and the difficulties to encounter from the nature of the soil and materials, this was a very arduous unpromising undertaking at the beginning, yet by the laudable perseverance of the gentlemen of the county, all difficulties were overcome, and the road has become of no less consequence in promoting improvements in agriculture, along its course, than in facilitating internal commerce. New houses were built; the fields were inclosed and subdivided; and, from the easier conveyance of manure, a new appearance of fertility given to the country. Since this first essay, the number of turnpike roads has been greatly multiplied. The same public spirited zeal has been exerted through all the county. Landholders, wealthy individuals, and bodies corporate, have united in obtaining acts of parliament, and advancing money for making roads through different tracks, in various directions; so that convenient

communications are now opened, towards all quarters; through this county, to the most distant provinces of the kingdom; many of them passing through tracks which were almost entirely deprived of the benefit of intercourse before, there being either no roads, or such as were not passable for loaded carriages. Besides the building of bridges, and other appendages to the roads, the making of the roads themselves has, in some places, been very expensive. The soft sand-stone found in such places proving insufficient, the roads have been obliged to be made with hard stone, sometimes brought from rocks at several miles distant: Hence the expenditure necessary for the accomplishment of all these great works has been immense; and if time and room would allow to state it here, would give a very advantageous idea of the liberality of the gentlemen of the county. In several instances, the revenue arising from the tolls is very inadequate to the expence of making the roads, not yielding perhaps above three per cent. of interest on the outlay; but the creditors have the satisfaction to see that they have contributed much to the improvement of their country, and all of them are, in some measure, partakers of the advantages arising from it. Nor has the spirit for making roads been confined to the great lines. These opening the communication, branches of inferior note have every where been directed towards them. The statute work of the different parishes has been generally converted into money, and many who have interest in particular roads, upon the faith of being paid by instalments from these funds, have advanced the expence, and made them by anticipation, so that the principal parish roads are mostly in pretty good order.

It has rather been unfortunate, that this county embarked so eagerly in road making, before all the requisites of a good road were sufficiently understood. The old roads, without regarding inequalities in the course, generally proceeded something near the direction, which seemed to be the readiest to some known station, and so on from that to the next. Except a little finical straightening, pretty much

the same conduct was followed in laying out the new. The inconveniency of steep pulls was lost, in the main and more obvious aim of making roads regular, smooth, and firm, instead of the former awkward, rugged, and miry ones. From this, and other circumstances unavoidable, where human fallibility is the guide, and so many people of different views and opinions concerned, mistakes have been committed, and the roads have not at all times been conducted in the most eligible course. But where the main design was so public spirited—where so many sacrifices of private interest and personal ease have been made—and where the general result is so beneficial—it would show an unpardonable want of candour, to censure little errors with severity. Now that experience has shown the disadvantage of carrying a road over knolls, the pulls have been eased, and the early made roads much improved, wherever the funds would admit. In laying out the later ones, more enlarged ideas have taken place,—former errors have been avoided,—and instances of great judgment have been shown, in shunning the natural difficulties of the country, and conducting the road by the easiest route. This is particularly the case, in the roads from Glasgow, by Muirkirk, to Dumfries, &c. and that which crosses it at Kilbride, leading from Hamilton to Ayrshire. The road now making, from Edinburgh, by Airdrie *, to Glasgow, is also conducted in a remarkably level easy line, as are some new roads near Leadhills. Upon the whole, notwithstanding the softness of the soil, the inequalities of the surface, and the great expence necessary for making and supporting roads to stand the fatigue of so many heavy carriages, the roads of this county are so many and so well kept, as to answer all the purposes of an extensive inland commerce. And perhaps no where in the kingdom are travellers better or cheaper driven, or commodi-

* This road is now completed. It has been executed at an enormous expence; but to the honour of the gentlemen, under whose auspices it has been conducted, it may be said, that it is in no respect inferior to any other road in the island, of the same length.

gies carried at an easier rate. Nor are there many instances, probably, of greater weights being drawn; for it is not uncommon for a single horse to draw a ton and an half on a cart.

SECT. 2.—*Canals.*

The Forth and Clyde navigation is so well known, that a minute description of it would be superfluous; and, besides, its course in this county is short. At 156 feet above the level of the sea, it enters the north corner of the county in the parish of Calder, and goes again out of it, into Dumbartonshire, at the aqueduct bridge over the Kelvin. This bridge has been much visited by strangers, and is admitted to be a stupendous work of its kind. The length of the Canal's course within the county is eight miles. At a place called Stockingfield, a collateral branch is brought off towards the city of Glasgow. It ended at Hamilton hill, an eminence at a little distance from the city, and was afterwards made to approach somewhat nigher. At the end of this branch a large basin is formed, and granaries, storehouses, &c. built around. This place is called Port Dundas, and stands on the top of a little steep hill within half a mile of the Cross of Glasgow. The length of the branch is two miles and three quarters.

There is another inland navigation in the county, called the Monkland Canal. It was begun by the authority of an act of parliament obtained in 1770, and carried from the centre of the coal works in the parishes of Monkland, upon a level of 252 feet above the sea, as near Glasgow as the same level would admit of its approach. The principal intention of this undertaking was, to increase the sale at the Monkland coaleries, and furnish Glasgow with a more plentiful supply of fuel. The coals were brought in boats to the extremity of the canal, and from thence let down an inclined plain formed of wood. At the foot of this they were again put in carts, and carried to the town. The circumstances of the times having occasioned the demand to be less considerable than was expected, and the repeated

ladings and reladings of the coal having inflamed the expence of the carriage, and injured the fuel in the opinion of consumers, the subscribers found the canal business an unprofitable concern, and came to the resolution, in the year 1782, to dispose of the stock by public auction. Mr. Stirling of Drumpellier, and the mercantile company with which he was connected, became at last the sole proprietors of this navigation. An agreement having been made between the proprietors of the Forth and Clyde navigation and them, for their joint advantage, the canal has been carried eastward to receive a supply of water from the North Calder, the source of which is a lake on the summit of the country, upon the confines of the county of Linlithgow, and westward to join the branch of the Forth and Clyde navigation at Port Dundas. The length of this navigation is about 13 miles. It is raised at the west end, from Port Dundas, by eight locks, 96 feet, and at the east end, near Airdrie, to bring it in a level with the channel of the Calder, by two locks, 21 feet. Its width at the surface is 30 feet, and 15 at the bottom; the depth of water about 5 feet. By this canal, coal, &c. is carried westward from the coaleries; and dung, lime, &c. eastward, as manure for the adjacent lands.

A more extensive canal, to pass from Glasgow to Edinburgh through the middle of this county, was projected a good many years since; and about five years ago there was a great prospect of it being carried into execution. The principal intention of this undertaking was, to furnish a more abundant supply of fuel to both the above cities, from the immense beds of coal which lie dormant in many places of this county, and to carry lime from those parts in the track of the navigation where it abounded, to others where it was wanted. These carriages alone, it was believed, would have occasioned a considerable business on the canal;—industry, in different shapes, would have been aroused along its banks—lateral branches would have been brought in to join it—new products would have been raised through all the adjoining country—and easy intercourse would gra-

qually have advanced the industry and fertility of extensive districts, presently wild and desolate, in a very high degree. On these considerations, so soon as the design of carrying this undertaking into execution was publicly advertised, there was an appearance of subscribers sufficient to advance the money necessary for the purpose. Surveys were appointed, and made along different tracks, by Mr. Ainslie, as a surface surveyor, and by Messrs. Grieve and Taylor, as mineralogists; and very favourable reports were returned. But this horrid war having commenced, the attention of the public, and the capitals of moneyed men were diverted into a course diametrically opposite; and the hopes of this great national improvement being effectuated are now more remote.

SECT. 3.—*Weekly Markets and Fairs.*

It is less the custom in this, than in some of the neighbouring counties, for husbandmen to carry their produce immediately to market. A set of intermediate people generally come between the raiser and consumer. Fowls, eggs, &c. are collected by itinerant dealers; and cheese, and butter also, is either sold to such people, or to hucksters residing in towns. Grain of all kinds, likewise, is sold either to dealers or to the consumer by sample. Hence there is little occasion for a concourse of the country people with their commodities to market; and the weekly markets in the different towns of the county are much less attended than formerly. But there are stated days in the week for market days in all the towns, and the commodities of the country are still carried occasionally to these, and particularly to Glasgow, being the chief consumpt, to which there is still a great resort for the sale of consumable commodities, on the Wednesdays. A weekly market, for the sale of horses and milch cows, is also held there every Tuesday and Wednesday, for two months, after the middle of January, yearly.

Though fairs are not so crowded as they are said to have been in former times, there is still a great resort to many of them, held at the towns and villages of the county.

Fairs are held at Carnwath, Carstairs, Lanark, Carlsuke, Douglas, Lesmahagow, Stonehouse, Strathaven, Hamilton, Shotts, Airdrie, Rutherglen, Kilbride, and Glasgow. The times at which these fairs are held may be seen in all the almanacks. In them are sold, wool, flax, lambs, cattle, horses, &c. At such meetings farm servants are generally hired. The fairs are most frequent in the ancient burghs of Rutherglen and Lanark. Near the village of Kilbride, three or four weekly markets, for the sale of sheep, are held on the Saturdays, the latter part of May and first part of June yearly.

The customs exacted at weekly markets and fairs, are certain taxes which the magistrates of burghs and the proprietors of ancient baronies are, by the laws and customs of the nation, authorised to levy from the inhabitants of the country, who resort to such meetings to sell their commodities. This is one of the stigmas which the barbarous policy of the feudal system has affixed on the cultivators of land. These dues are always exacted insolently, and frequently with unjust rigour, by the meanest tax-gatherers; and are commonly paid by country people with indignant reluctance.

SECT. 4.—*Commerce and Manufactures.*

Before the commencement of the present century, this county was but little known, either for its commerce or manufactures. It was from the ports on the east coast that the intercourse of the kingdom with foreign countries was carried on; and this county had not a great quantity of commodities to exchange. It does not appear to have been remarkable, either for the quality of its wool, or for skill in manufacturing it, at any period of which tradition hands us down accounts. The manufacture to which the inhabitants chiefly betook themselves, besides fabricating the necessary articles for domestic use, was that of linen. Before the union, a considerable traffic was carried on, in all the towns of the county, of collecting linen yarn, and sending it to England, besides what was wrought up into cloth; and, fifty years ago, the women were become famous

for making fine linen yarn. Various branches of the linen manufacture have been established, from time to time, in different parts of the country; many of the inhabitants have been instructed in the art of weaving; and that art has been admitted to be brought to a considerable degree of perfection. But the independent manufacturing establishments, in the central parts of the country, have all sunk, one after another; and, as the city of Glasgow has advanced in commerce and wealth, almost all the manufactures of the county have ultimately centred in it; and it being now the great mart of every commodity produced in the county, the commerce and manufactures of Glasgow comprehend the whole.

Before the reformation, Glasgow seems to have been little concerned in any branch of secular industry. Being the see of a rich archbishopric, its inhabitants were either ecclesiastics, or such as drew their support from the plentiful revenue raised by clerical address. But the hierarchy cherished in its bosom a viper, which, as soon as it gathered strength, was to sting its patron to death. The doctrines of the reformation were greedily received in the western parts of Scotland; and many of the inhabitants of Glasgow became strongly tinctured with them. When the interest of the great concurred with the religious zeal of the vulgar, the established religion was the easy victim of so powerful a combination: and the bold severe people, who had inveighed so loudly against the sloth, the knavery, the luxury, and the licentiousness of the clergy, resolute to act an opposite part, in every respect, assumed a new style of manners, and earnestly set about working themselves a livelihood, by what they deemed more creditable means. Accustomed to accommodate the occasional wants of the numbers who resorted to the metropolitan see, on a religious account, the inhabitants of Glasgow were somewhat inured to the habits of traffic and manufacture, which they now improved. The manufactures existing in the county were extended, some new ones introduced, and the internal commerce of

the country gradually enlarged. Foreign commodities, to supply the demand of the neighbouring country, were imported; and fish, caught in the river or its estuary, and salted, with some other small articles, exported in exchange. The small capitals thus employed in the hands of people whose austere manners forbade the use of every amusement, and led to an unremitting attention to business, and the most rigid economy in the exercise of it, could not fail to increase. The spirit of Glasgow communicated itself, in some measure, all around, and the county was slowly advancing in wealth and industry, when the treaty of union between the two kingdoms was concluded, and laid open a direct trade to all the British colonies.

Those industrious merchants quickly availed themselves of this event: commerce made rapid progress, and not only continued to enlarge the scale, on which all the former manufactures were conducted, but, from time to time, introduced various others, which, from small beginnings, became extensive and flourishing. In this manner the commerce and manufactures of Glasgow advanced, and had arrived at a great degree of prosperity at the commencement of the American war. This put a stop to the tobacco trade, which had hitherto been the principal source of wealth, and diverted the industry of the country into a different channel. The war, which for some years checked the progress of trade, was no sooner ended, than the capitals, acquired by a long course of successful industry, were sent in quest of new employment. That wonderful exertion of human genius, the machinery for spinning cotton, had now been invented, and brought to such a height, as to prepare the material for the loom, in much greater perfection, and at a much cheaper rate, than heretofore. The manufactures of Lancashire, which, before, were much employed on cotton, were extended and improved, by means of yarn obtained from the new machines; and, as they advanced in refinement, had begun to vie with the elegant productions of the eastern looms. This inflamed the emu-

lation of Glasgow. All the new machinery necessary for the cotton manufacture were introduced into the county; large quantities of the raw material were imported; and not only all the different kinds of goods, formerly made of linen, but imitations of the various manufactures of India, formed from that material. The art of dyeing was much improved; and a durable tincture, of various hues, given to cotton. The printing of cloth, too, made great advancement; and large quantities of cotton garments, of elegant patterns, were executed and exported, with other goods, to the different markets of Europe and America. But the conduct of this manufacture was not confined to people of capital and established credit. The banks were become numerous; and, if they were not all possessed of large capitals, from the manner in which they had, for a considerable time, been conducted, they had at least obtained very extensive credit; which, from the prospect of greater emolument, they liberally parcelled out among the manufacturers, and strove with one another who should have the greatest share in the business. By such means, adventurers, without stock or experience, were enabled to contend with those who had both; and the contention of so many individuals, to enlarge their own particular concerns, raised the wages of every branch of manufacture to an immoderate height. The numbers of people already engaged in the manufacturing occupations being insufficient, new ones flocked to the different works, from all quarters and all employments; the males to the loom, the females to the flowering of muslins, &c. Even those who, from their tender years and weak capacities, were hitherto reckoned unfit for any kind of profitable labour, found employment in the cotton mills, and other small works; so that there were perhaps few families in the county, some part of which was not engaged in this extensive manufacture. Of 126,000 people, which was about the population in the year 1792, if we comprehend all classes, from the master manufacturer to the child begun to plant the teeth of cot-

ton cards, the number thus employed must have been 60,000, or upwards. When the high wages are considered, the annual value of all these peoples labour must have amounted to a large sum: but it would be scarcely possible to make a fair computation of it, the manufactures of Glasgow not being confined to the county, but having extended over a considerable part of Scotland. It has been said that the operation of these manufactures on the materials imported in a year, added, at least, a million to their value; and when the profits of the manufacturer, residing in Glasgow, are taken into view, it might have been supposed that so much should have centred in the county, as would have tended greatly to enrich it, and better the condition of all classes of the inhabitants. But a long course of prosperity having banished the frugal habits by which former wealth was amassed, an opposite style of manners had taken place, and pervaded all ranks; and upon the approach of the war, this phantom of prosperity seemed to have vanished, and, "like the baseless fabric of a vision, left not one trace behind."

Commerce suffered a severe shock—goods were accumulated in the hands of the manufacturers—frequent bankruptcies occurred—and great numbers of the operative people were thrown idle, and without bread. The consternation was general and great, but not of long duration. The surplus artificers betook themselves to the army, or emigrated; and the business of manufacture, being disencumbered of most of the rash inexperienced adventurers, was left to the conduct of those whose capitals, abilities, and professional knowledge, were more adequate to the employment. These expert people did not remain inactive; but having discovered new vents for their goods, began to act on surer grounds than before; and the manufacture has been steadily carried on with great success ever since.

Though the magnitude of the cotton manufacture, in a general view, is such, that it

* Like Aaron's serpent swallows up the rest."

there is a great variety of others in the county, and more

particularly at and around Glasgow, in which large capitals and great numbers of labouring hands are employed.

The manufacture of cast iron goods, at the iron works, has been mentioned. By these are made cannon, balls, mortars, shells, grates, stoves, pots, and a long list of different utensils. Smith work, in malleable iron, is also done to a considerable extent; and buildings are now erecting on the banks of North Calder, near Airdrie, for mills to split iron, where it is proposed to manufacture different kinds of Birmingham goods.

The tanning of leather, and the manufacture of boots, shoes, and saddlery, is carried on to a considerable extent, in different parts of the county.

The linen manufacture is still carried on, though on a more contracted scale; and great quantities of nuns thread are manufactured. The inkle manufacture was early introduced into Glasgow, and is now pretty extensive. Carpets, and other coarse woollen goods, and hats for domestic and foreign sale, are also manufactured.

Not only manufactures of bricks, tiles, and the coarser kinds of pottery, but of delft and stone ware, bottle and flint glass, for all the different purposes, have been long exercised.

To this list may be added the manufactures of ropes, lines, and cordage of all kinds; of soap, candles, sugar boiling; the founding of printers types, printing, dyeing, bleaching, printing of garments, &c. &c.

To give a more minute detail of all the different branches of manufacture exercised in the county, would be as difficult as needless. But a just statement of their extent, of the capital they occupy, the profits which accrue, and the numbers which they employ and support, might be more important, if it could be given. Any attempt of that kind, however, would be merely conjectural, and might tend more to mislead than inform. The reader must therefore be left to form his own conceptions on the subject.

The ports on the Clyde, through which the foreign commerce of Glasgow is transacted, lie in another county, in the

Report of which the tonnage of the shipping employed will probably be given, by which the reader will judge of its extent.

This great extent of commerce and manufacture, while it has, on the one hand, tended to promote agriculture, by enlarging the demand for its various productions, has, on the other, proved a great check to the gradual progress of agricultural improvement, and prevented that increase of land produce which a growing population required. It has withdrawn the capital, and allured the most enterprising inhabitants from the cultivation of land, to the pursuit of more splendid projects : it has seduced the peasantry from their residence in the country and the labour of the fields, to seek a life of greater ease and enjoyment in towns and manufacturing villages. The new modes of life introduced into the clusters of artificers, among whom the profligate and the dissipated generally make a part, have spread their contagion among the lower orders of the people, tending not only to enervate the body, and disqualify it for laborious exertions, but to contaminate the morals, and destroy that simplicity and decency of manners which is their most important quality, either with respect to their own interest or that of society. The tempting encouragement of manufacture has thus diminished the number, and raised the wages of labourers to a great pitch. While the advance of rent, of wages, &c. has inflamed the expence of cultivating corn, the facility of commerce, and the encouragement of bounties, enabled the merchant to import it at a lower rate than it could be raised in a cold and barren country. This, accompanied with the great rise on all kinds of provisions obtained from pasture land, induced many occupiers of land to betake to grazing, which occasioned much land to be left in grass before it had undergone such culture as was necessary to make it produce grass ; by which the present produce of the county was diminished, and its future improvement retarded. For when land, naturally fertile, or made so by cultivation, is laid in grass, it is soon covered with a close turf, and the quality of the herbage improves while it is

continued in pasture; and when it is again brought into tillage, it repays the patience of the community with an increased produce of grain: but on poor lands, and especially such as have a wet bottom, the herbage becomes coarser and less in quantity, the longer it lies in pasture; and the soil becoming wilder, the difficulty of improving it is increased. The truth of this assertion, and of the inference implied, will be acknowledged by the most superficial observer, who has had occasion to mark the state of the poorer soils of this country for the last 30 years; where numerous instances occur of fields, the surface of which were almost naked, about the beginning of the above period, and now, by the ordinary exertions of common farmers, with no manure but the farm dung and a little lime carried annually, are bearing tolerably good pasture; whereas such similar fields as have been neglected, bear little esculent herbage, and, at the present price of all the means of cultivation, could not be now improved without loss.

SECT. 5.—*Poor.*

Any attempt to give a statement of the number of those who derive their sustenance from the charity of others, or of the amount of what is thus bestowed, would be very defective, and give no just idea of the subject. As to the first, the numbers of the poor are certainly very great, and seem to have increased, as the extension of manufacture has afforded more ample support to the industrious. After what has been said in the former parts of this Report, it will be needless to offer a solution of this seeming paradox. Besides all those that are to be found on the different parish lists, or are entertained in charity houses, &c. numbers of mendicants swarm from the populous towns of this and the neighbouring county, over all the country, and extort charity by all the arts known to people of that profession. Many of the modest, who have sunk under the pressure of misfortune, are supported by private charity. With respect to the support of the poor, besides the assessments and other ordi-

nary funds of the different parishes, and the charitable institutions, of which there are many in the county (the most considerable are in Glasgow, and an account of them may be seen in Sir John Sinclair's Statistical Account of Scotland, Vol. V. page 518.) very liberal contributions are made in all calamitous emergencies, whether general or particular. The alms extorted by the practice of mendicity must surely be considerable; and the sweeter oblations of the feeling heart, which impels the right hand to do what the left hand knoweth not, far from trifling. But great as they may be, the poor ought certainly to be supported, by whatever means their poverty has been brought about. Happy would it be, if some expedient could be devised to relieve the wants and soften the distress of the children of misfortune, in a frugal way, without debasing the minds of those who were supported to the abject state of beggary, or inducing idleness among others, on the prospect of such support!

The numerous friendly societies now instituted in this county, for the relief of their own members in distress, so far as they go, bid the fairest for the attainment of this purpose. The wisdom of the regulations made for managing the affairs of these societies, and the integrity, frugality, and good effect with which they are administered, is such, that it would do no discredit to any of the higher classes, to whom more important trusts have been committed, to have their conduct compared to that of the managers of the friendly societies of Clydesdale. Every member of any of these societies contributes a small pittance monthly or quarterly to the general stock, and receives from it, in all cases of real distress, a comfortable support. It seems to be no less the interest than the duty of people of the higher orders to lend their aid to make this mode of supporting the poor general; since it would perhaps contribute to the preservation of their morals, as well as to their comfort in distress. People might not only give donations, according to their ability, to one of these societies, but they might oblige the servants whom they admitted into their families to become mem-

bers of it. The more general it were to enter into such societies, it would become the more discreditable to neglect it; and, perhaps, there would fewer remain with that baseness of disposition, which prompts people, either from selfish or wanton motives, to injure the property of others; for, it is believed, there are few or no instances of the regular adherents of these societies being caught in crimes.

SECT. 6.—*Population.*

The following table of the population of the county is mostly taken from the accounts of the different parishes contained in Sir John Sinclair's Statistical Account of Scotland, and may be presumed to be pretty near the present numbers.

TABLE.

Parishes.	Numbers.	Parishes.	Numbers.
Carlisle, - - -	1730	Brought over, - - -	24,651
Lanark, - - -	4751	Stonchouse, - - -	960
Carstairs, - - -	1200	Glasford, - - -	788
Carnwath, - - -	3000	Avondale, - - -	3343
Dunfyre, - - -	360	Hamilton, - - -	5017
Dolphinton, - - -	207	Blantyre, - - -	1040
Walton, - - -	427	Kilbride, - - -	2359
Biggar, - - -	937	Shotts, - - -	2041
Liberton, - - -	750	Dalziel, - - -	470
Lamington, - - -	417	Cambusnethan, - - -	1684
Coulter, - - -	316	Bothwell, - - -	2707
Crawford, - - -	1490	Cambuslang, - - -	1288
Crawfordjohn, - - -	590	East Monkland, - - -	3566
Douglas, - - -	1715	West Monkland, - - -	4000
Roberton and Wilton, - - -	740	Rutherglen, - - -	1860
Simontown, - - -	264	Part of Cathcart, - - -	130
Covington, - - -	484	Carmunsock, - - -	600
Pettinain, - - -	386	Govan, - - -	2518
Carmichael, - - -	781	Glasgow and suburbs, - - -	61945
Leshmahagow, - - -	2996	Barony of ditto, besides	
Dalserf, - - -	1100	the suburbs, - - -	3093
		Calder, - - -	1767
Carry over, - - -	24,651	Total, - - -	125,927

CHAPTER XII.

OBSTACLES WHICH IMPEDE IMPROVEMENTS IN AGRICULTURE, INCLUDING GENERAL OBSERVATIONS ON AGRICULTURAL LEGISLATION AND POLICE.

HERE a crowd of ideas rush on the mind; and make it doubtful whether it be proper to stop or to proceed. The legislature of a great nation, which has too long disregarded the culture of its soil, its most important interest, or mistaken the means of promoting it, has at length been convinced of the necessity of paying more attention to it, and has chosen, from the most distinguished classes of its citizens, a Board to preside over the national agriculture, and examine by what means its success might best be advanced. This respectable Board, in order to call the attention of the public more fully to a subject in which people of all ranks and conditions are interested, has, very properly, solicited information from every corner. In such a case, it would be affronting the Board of Agriculture, and the public, who expect ample information through this channel, to amuse them with a few incidental inconveniencies attending husbandry in a particular district. Such local inconveniencies have no considerable effect on the state of the national agriculture, and would be easily obviated by experience and industry, so far as circumstances admitted, if the more general obstacles were removed.

But if it is useless and unsatisfactory to treat of these frivolous topics, alas! it is much to be feared, it would be equally vain to attempt to state those more important and formidable obstacles, which were first founded by ignorance and barbarity, and have since been reared and confirmed by prejudice! From the earliest periods of social civilization, contemplative men, of all ages and nations, have discovered the immense importance of agriculture, and exerted the powers of reason and eloquence to recommend the practice of it to their countrymen. Though these have not been wanting in this island,—though the safety of property, un-

der the regular administration of law, and the high demand for every kind of land produce, have long afforded encouragement to agriculture, far superior to what exists among the surrounding nations, yet such have been the ambitious views of statesmen, with which the public have always too eagerly concurred, and sometimes spurred on, that the pursuit of war and conquest, colonization and commerce, has been preferred to the fundamental support of the nation, the cultivation of the soil; and the Reports returned to the Board in 1793 and 1794, bear ample witness, that agriculture is left far behind by other industrious arts. Since such has been the case, in spite of several intervals of tranquillity, in which the nation has had leisure to attend to its internal resources, and strong lessons to make them its peculiar care, what hope remains that the feeble representations of an obscure individual, or even of any number who may happen to concur, can now have any effect, at a time when we are informed, by the best authority, we have to struggle for our existence as a people!

O mortals! mortals! when will you, content
 With nature's bounty, that, in fuller flow,
 Still as your labours open up its sources,
 Abundant gushes o'er the happy world;
 When will you banish violence, and outrage,
 To dwell, with beasts of prey, in woods and deserts?

THOMAS CORIOL.

But, however hopeless the execution of this task may be, since it has been undertaken, it has become a duty; and therefore the great obstacles to improvement in agriculture shall here be shortly stated: And, though the writer does not mean to confine himself to such as are peculiar to this country, which, strictly speaking, would amount to nothing, he will dwell chiefly on those that are common to this and other surrounding provinces in similar circumstances. But, before we proceed, it will be necessary to premise, that there are circumstances connected with the situation of Britain, which tend to magnify existing obstacles; or, in

other words, these circumstances demand that agriculture should have more support and encouragement in Britain than may be necessary in many other countries. The circumstances alluded to are, 1st, The climate and soil; 2^d, The inadequacy of the produce of agriculture, in its present state, to supply the wants of the inhabitants.

1st, The climate of Great Britain, from its insular situation, is cold and unsteady. Surrounded by a vast ocean, its vapours frequently hang over the country, and exclude the maturing influence of the sun. This is more particularly the case with the northern half of the island, where the inconstancy and inclemency of the weather frequently not only interrupt the labours of the husbandman, but also disappoint his harvest expectations, in spite of all his diligence. Under such a sky, it is not to be expected that the soil can be more favourable. Accordingly, we find its fertility is kept up only by dint of industry and attention.

2^{dly}, The land produce of Britain seems to be short of the demand of its own inhabitants. The writer recollects, that, several years ago, an inquiry was made, by order of the Privy Council, into the state of imports and exports of corn, to and from all the ports of Britain: The result was, that, for an average of 18 years immediately preceding the time of the inquiry, the imports exceeded the exports considerably; whereas, for an average of 18 years previous to that period, the balance stood greatly on the opposite side. In order to have stated this more accurately than from loose recollection, application was made at the custom-house of Edinburgh for the sight of a copy of the Report made to the Privy Council, which was promised, but has not yet been obtained. Should it be got, an extract shall be given in an Appendix. But, if the corn raised in Britain was not sufficient to feed all its inhabitants more than 20 years ago, there is reason to suspect, that the deficiency has been much greater of late, when such vast imports, from all quarters of the world, have been made.

But, whatever may be the case in general, the deficiency,

both of animal and vegetable food, for the support of the inhabitants, produced in this county, is very considerable. A few fatted calves, some sheep and lambs, butter and cheese, go from the upper parts of the county to the Edinburgh market; but the animals for slaughter from the more western and northern parts of Scotland, and the salted beef, pork, and butter, from Ireland, and cheese from different counties of England, consumed in Glasgow and its neighbourhood, are much more considerable. The neighbourhood of Glasgow being the best corn market in the country, there is scarcely any of the corn raised in the county carried out of it; and much from other quarters is annually consumed in it: but there is no rule by which the quantity of imported corn can be accurately ascertained. In a late corn law, which prescribes regulations for the importation and exportation, the county of Lanark is joined with those of Renfrew, Dumbarton, Bute, and Argyll, each of which, and especially the first, requires always a great deal of foreign supply. But, let us suppose that the consumption of Glasgow is equal to one-third of the whole import. The oats and oat-meal imported into the Clyde, in the year 1790, was 107,000 bolls, of eight stones Dutch each boll. The same year, there was brought along the canal to Glasgow, &c. 164,000 bolls of oats, oat-meal, wheat, barley, and pease. But a boll of wheat, barley, or pease, will produce much more than eight stones of meal; let us therefore add one-fourth more to this, or 41,000 bolls, which makes the total import 312,000, and the consumption of Glasgow and its neighbourhood, according to the above supposition, 104,000 bolls, or 832,000 stones Dutch. The importation has, some years since, been still more considerable; but this increase may, in some measure, be imputed to the number of cavalry quartered in the country.

It is equally difficult to compute what the whole consumption of the county may be annually. What is consumed by the distillery, by brewing, and by the great number of horses kept for all different purposes, cannot be as-

certained with any degree of accuracy that could be depended on. It is presumed, that 2½ bolls, or 20 stoncs of all kinds of meal and flour, with the quantity of potatoes commonly used, (the most part of which are raised in the county) may serve each person, at an average, for farinaceous food, through the year; and, supposing the population, as above stated, about 126,000, the total consumption (by the human race) will be 315,000 bolls, or 2,520,000 stoncs, nearly one-third of which is imported from different parts.

This deficiency of food, which seems gradually to be increasing, it would appear, is not peculiar to the large province with which this county is connected, but, if what is above stated be agreeable to fact, is, in some degree, the general fate of Britain, and, therefore, merits the most serious consideration. Whatever the skill and activity of a nation may be in commerce, or in the refinements of manufacture, it is surely alarming to be generally in want of food; as it must put the independence and continued prosperity of such a nation on a very precarious footing. Food is the principal and natural wages of labour, the great incitement to industry, and the cause of the increase of an industrious population*. A sufficiency of food, therefore, must be the strength of a state; and the means used for producing it the most important employment. In some of the transactions of the American Congress, published in the newspapers a few years ago, here quoted from memory, the Americans, comparing themselves with the manufactur-

* To avoid lengthening out this Report with numerous quotations, the reader is here referred to a work of great merit, well known to the public, viz. *An Inquiry into the Nature and Causes of the Wealth of Nations*, by the late Dr. Smith, Book I. Chap. XI. Part 1st and 2d. This very intelligent and respectable author, though he may, perhaps, have erred in some particulars, which, in the execution of a task so arduous, is not surprising, has favoured the public with a greater number of just and liberal principles of political economy than any other book in the language contains. It is hoped, therefore, it will be allowable to resort to such authority; and it may again be necessary to do so in the sequel.

ing nations of Europe, say, "We are the masters and employers of manufacturing people; they are our labouring servants. In our superabundance of provisions, &c. we possess the wages of their labour; we can retain these; we can retrench our superfluities, and abstain from employing them; but they cannot live without our employment."

Having thus premised the strong necessity of removing every obstacle which stands in the way of improvement in agriculture, and of using every possible means to promote its advancement, we come now to state these obstacles; and, it is hoped, what has been advanced will justify what follows.

The first obstacle which shall here be mentioned, is the little respect which has been shown to husbandry, and the marks of degradation and servitude which the laws and customs of the country have attached to the profession. A number of instances, sufficient to illustrate this, have been given in the preceding parts of this Report; and to these the reader shall be referred, without troubling him with a recapitulation. From an employment of such importance, and from which the necessities of the nation demand so many additional exertions, every thing that tends to damp the spirits, or fetter the activity, should be removed. Without taking time to collect authorities, or multiply arguments, to show how unfavourable servitude, or whatsoever borders upon it, is to the success of agriculture, we shall refer to the sentiments of the respectable author just now mentioned, from whom we take the following short quotation: "In ancient Italy, how much the cultivation of corn degenerated, when it fell under the management of slaves, is remarked by both Pliny and Columella *," &c. &c. If depriving the cultivators of land of their freedom tends to depress cultivation, then it must surely follow, that, to put them upon the most liberal and respectable footing, would greatly forward the success of that art.

* Smith's Wealth of Nations, Book III. Chap. II.

The unhappy jealousy which subsists between landed and manufacturing people, is another obstacle to the success of agriculture. The author of this, in a former work *, has endeavoured to show how ill founded this jealousy is, and how strictly the interest of both classes is united. Our present business is to explain the bad effects of the want of this union. Landed people have beheld, with some degree of envy, numbers rising into consequence by the effects of industry, and have wished to lay that industry under contribution, by restraining laws, intended to raise the price of provision. Manufacturing people, on the other hand, have been making perpetual struggles to counteract this; and, by loud clamours of the danger of the poor being starved, have obtained certain relaxations of those laws. Hence has arisen that contradictory jumble of statutes and regulations, known by the name of the corn laws, and the officious interference of the executive government, in all pretended emergencies. The part which land-holders have taken in forming these laws, was, probably, with a view to increase their own revenue, rather than to improve the condition of husbandmen, or promote agriculture. It would seem, however, to have been without effect. Rents, indeed, have greatly risen; but the restraining laws have not been the cause. The price of butchers meat, and butter, never rose to a great pitch, till after liberty was given to import live cattle, salted beef, and butter, duty free, from Ireland; and the price of corn is not advanced. It is true, indeed, as appears by the table of the fair prices of grain, given in page 133, there is a small advance of the average money price of each 15 years above the former; but, in the last period, there were two years of dearth. Besides, though there is a small rise in the money price of corn, its real price is greatly fallen. That the value of money is greatly fallen will not be denied. Whether this has been occasioned by the increased

* Naismith's Thoughts on Industry, Edinburgh, printed 1790, Book III. *passim*.

quantity of circulating paper, or by what other means, we stop not to inquire. The judicious author, lately quoted, observes, that labour and corn are the best measures of the value of one another. Let us try the price of corn by this rule. About the year 1760, and for some years after, the wages of a labouring man were 8d. a day. The average price of meal, in that period, is 10½d. per peck; the wages of a day's labour, therefore, would not purchase a peck of oat-meal. The average price of a peck of meal, in the last period, is about 12½d., and the wages of a day's labour being 1s. 6d. will nearly purchase a peck and an half. Hence the value of corn is reduced more than one-third since the year 1760. The real price of beef and butter, the importation of which from Ireland, a plentiful country, is unrestrained, is, however, advanced. In the year 1760, the wages of a day's labour would have purchased at least three pounds of beef, or two pounds of butter; at present it will not purchase much more than two pounds of beef, and not 1½ pound of butter. The real price of the provisions obtained from pasture is, therefore, advanced nearly as much as that of those obtained from tillage is depressed.

From this view of the matter, it is obvious, that all the attempts of landed gentlemen to obtain partial laws, for their own emolument, have been without effect. The interest of husbandmen, and the general cause of agriculture, however, have suffered in the struggle. If the commerce in provisions had been at all times free, without restraints or bounties, importers would have been cautious to import no more than they had a prospect of selling with profit; and the provisions produced at home would always have had as much advantage in the market, over the foreign provisions, as the expence the latter cost in importing, &c., and the damage they often suffer by sea carriage. Hence, in times of scarcity, the husbandmen of the country would have got a higher price for such provisions as they had to sell, which, though, perhaps, not adequate to the deficiency

of quantity, would have, in part, compensated for it. But, according to the present economy, this is not the case. The crops 1794 and 1795 were much more productive, through a great part of Scotland, than that of 1796, yet the prices of corn were continually rising during the two first productive years, and fell very low before the crop of the last less productive year was consumed, the very best oats having fold, in the beginning of this Summer, at 12s. per boll, and under. The present Summer, 1797, has been the most cold and barren one ever remembered. The crop has been now reaped, and found defective; yet this deficiency has hitherto had very little effect on the market price of corn. Husbandmen have nothing to say in the matter; and, besides, they are, as has been already shown, unequal to such struggles. Landed gentlemen, the champions of the cause on the one side, are not equal to their opponents. Besides, the latter have the popular clamour on their side, and, apparently, the cause of humanity. A minister, therefore, finds it necessary to lean to this side; and, in order to gain popularity, if simply opening the ports does not satisfy, he grants large bounties to encourage importation.

Thus, it appears, that, if any party has gained by this vain contest, it has been the manufacturing interest, or the consumers. But it would have been no worse for them if the cause of contest had never existed; if importation and exportation of corn had been always free, unassisted and unrestrained. This was the highest of their demand; and it was all they could reasonably demand. Had this been the case, so soon as an increase of industrious people, and the more expensive manner of living, induced by the increase of wealth, had raised the demand for provisions above what the present state of culture could supply, the husbandmen of the country, having an advantage over those of other countries equal to the whole expence of importation, would have been excited to make new improvements, to answer the increasing demand; and would have, probably, succeeded. Consumers would thus have had the sure pledge

of a more certain and regular supply than can be expected from the operations of foreign commerce.

The writer would have been ashamed to have dwelt thus long on a topic so obvious, if it had not been, that, obvious as it is, the principle does not seem to be generally admitted. He, therefore, thinks it his duty to take this opportunity of bringing it once more under the review of the public: and, besides, it seemed necessary to say so much, in order to illustrate the position, that the discordance between the landed and manufacturing interests had been an obstacle to improvement in agriculture. He is of opinion, that this discordance has the same effect in other instances; but he despairs of being able to explain them in such a manner as to be fully comprehended. He must, therefore, be content with observing, that, of all the people whom the allurements of manufacture have abstracted from the labours of the field, very few ever now return to lend occasional aid. The connection is entirely broken off, except when they become outcasts from manufacture, and issue forth to beg their bread among the farm-houses of the country.

The over-stretched rent of land, the scarcity of labourers, and the high price of their wages, taken together, make a formidable obstruction to improvement in agriculture. The first has been already noticed in this Report, pages 59 and 68, the last in pages 53 and 150. The rapid rise of land-rent seems rather, at first, to have originated in a kind of frenzy among farmers, than any premeditated design of the landlords: but the latter quickly availed themselves of that frenzy; and have certainly carried the matter too far with regard to the general interest of agriculture. This rise of rent, it would appear, must at length come to a period. It has been shown (page 131) that the increase of rent has not been supported by an increase in the price of corn; and, from what is stated (page 156), there is some reason to suspect it is not much more supported by the increase of quantity. The scarcity of labourers, and the high price of their wages, adds to the burden of high rent, which make

the husbandman's prospect of profit small and precarious, prevents the increase of his stock, and thus checks his spirit, and weakens his energy in the cultivation of his farm.

The three obstacles above enumerated, are the cause of a fourth, not less considerable; that is, the deficiency of the stock employed in agriculture for the purpose of carrying the improvement of the country to the necessary extent. The low estimation in which husbandmen are held, must, no doubt, sometimes prevent men of generous souls from embracing the profession. The advantages which commerce and manufactures have gained over agriculture, have led much capital and enterprise from the latter to the former. Much agricultural capital was consumed in the numerous bankruptcies which succeeded soon after the great rise of rents took place. At that time, many cautious husbandmen withdrew from the employment, and carried their capitals along with them. And there is little hope, that, in the present state of things, any considerable quantity will return from other employments to the support of agriculture. Agricultural stock has, no doubt, been increasing again, of late years, in the hands of some of the most expert and successful husbandmen; but it has been losing its efficacy in a much greater degree. It is observed, by husbandmen advanced in life, that, in no case, the efficacy of capital is so greatly sunk as in the stocking of a farm; it being generally believed, that, from the difference of the expence of all kinds of utensils and implements, the difference in the value of labouring horses, and other live stock, &c. 20*l.* would have gone as far, 40 years ago, as 100*l.* will do now.

But the principal obstacle to carrying improvements in agriculture to the greatest height of which the country is capable, is, the great extent of land held in property, by great land-holders, the shortness of the leases given to tenants, and the frequent practice of shifting the tenants at the end of every lease. Loaded with all the hardships and difficulties, enumerated and described in different parts of

this work, under which farmers labour, their exertions to improve their farms can seldom be very vigorous; and they are generally too solicitous to reap the whole advantage of such meliorations as they are able to make, which they sometimes carry so far, as not only to exhaust the land, but to hurt themselves. From the commencement of the lease, they begin to look forward to the end of it, and, hopeless of any preference to a new one, regulate their conduct accordingly. While the land is cultivated by the labour and capital of those who have no interest in its permanent improvement;—while the landlord impatiently expects the fall of leases, that he may advance his rental;—while the farmer makes it his study, as far as the articles of lease, or the indolence of the landlord, will permit, to disappoint this expectation, any great degree of increase in the fertility of the country can never happen. These jarring interests must be reconciled, and the influence of the landholder and the husbandman collected into one focus, before the face of the country can be effectually improved, and a superior quantity of food from our native soil obtained.

The engrossing of a great extent of land into single farms is another obstacle to the general improvement of the country. The question of the comparative advantage between moderate and great farms has been much canvassed; and many advocates have appeared in favour of great farms. Of late, however, the tide of public opinion seems to have turned a little to the side of moderate farms. But the author of this having, in a work to which he has already referred, examined this subject at considerable length, he begs leave to refer the reader again to the perusal of it*, which, he hopes, will convince the candid mind, that a country will be more advantageously cultivated, when a sufficient number of those employed in the cultivation are engaged, by their own interest, to pursue their labours with diligence and attention, than it could be by hirelings.

* Naismith's Thoughts on Industry, page 603, and onwards.

The only obstacle of inferior note, which shall here be noticed, is the effect of the game laws. These are said to be less oppressive in Scotland than in England, it having been settled, by some late decisions of the Court of Session, that game is property. But still it is the property of the proprietor of the land, not of the husbandman, on the produce of whose industry it is fed. The latter must not kill the hare that spoils his young orchard or his kitchen garden; nay, he would be ill looked upon by all the fox-hunters of the neighbourhood, if he were to destroy the robber of his hen-roost, though caught in the act. But a pack of hounds, with a dozen of men on horseback after them, driving with the fury of Bacchanalians, may penetrate his inclosures, trample down his fences, poach over the ground softened with the Winter's rain, destroying his young wheat and sown grass, and do more harm in an hour than all the hares and foxes would have done in a year. The fowler, too, though a less destructive animal, shows equal disregard to the property of the husbandman. Every one who thinks it genteel to be a sportsman, and can purchase a game licence, sallies forth, wherever the permission or indifference of land proprietors give him sufferance, as soon as the time prescribed by the game laws arrives, for the destruction of grouse or partridges. In vain the timid birds use all the speed of foot and wing to elude the chase. The pointers, staunch to the cause of blood, and their eager followers, still pursue. Every thing, then, must give way to the ardour of the sport. The annoyance of the peaceful flocks, on the heathy mountains, or the breaking down of fences, and trampling on the corns in cultivated lands, are nothing! However cautious and reserved sportsmen may be, in the pursuit of their game, the husbandman always suffers less or more: but the gentlemen have had their sport, and the rustic must be silent.

It is observed, that birds of game have diminished in numbers, as the laws to preserve them, for the sole enjoyment of legal sportsmen, have been made stricter. This

has been imputed to the resentment of husbandmen, who, it would seem, are allowed to have some reason to feel the inequality of those laws. But the decrease in the numbers of game, it is obvious, is owing to another cause. Game can only abound where the industry of man is not exerted. Animals in a wild state are harassed by the progress of improvement. They are obliged to shun the scenes of cultivation—their empire is narrowed—their opportunities of propagating disturbed by numberless accidents—and thus their numbers are gradually diminished, without any intentional interference of husbandmen. On the contrary, the continued existence of birds of game, in considerable numbers, is the strongest proof of the implicit obedience which husbandmen pay to the laws of their country, however adverse these laws may be to the interest of their order. If they had all those malevolent intentions which are imputed to them, how easy would it be for them and their families, who, in the course of their business, are perpetually exploring the fields, to crush the game in embryo, and, in a great measure, extinguish them!

When population was inconsiderable, and a great part of the country wild and desolate, savage animals were, no doubt, numerous, and would make injurious inroads on the cultivated parts of the country. In those barbarous times, it was the employment of the barons and their retinues, in the intervals of their wars and feuds, to hunt and destroy those animals. It was the most innocent part of their employment, probably, not seldom the most useful, and, therefore, might justly be considered as honourable. Posterity is, perhaps, more indebted to those barons for having extirpated wolves from the island than for the greatest part of their military exploits. Hunting, or the sport of the field, has, therefore, from those days downward, been considered as a gentlemanly employment; and every young man, who wished to be regarded as a gentleman, has thought it necessary to qualify himself for being a sportsman. But, happily, those times are now over. Marks of

the industry of man, preparatory of more important and successful improvements, are seen every where through the country. By the effects of these, the game is not only diminished in numbers, but those which remain are become naturally more shy and careful of their own preservation. Hence now, instead of manly activity and courage, much piddling patience, much low mechanic cunning, is requisite to success in killing game. Nor is the service done to society any longer an apology for the practice of pursuing game. Wherever the industry of man has been extended, the numbers of the game are too limited to be injurious; and even the nature of the ferocious, in some measure, changed. The fox is the only animal of prey which is accounted game in this country. Among the numerous flocks of sheep, which feed around the Cheviot, abundance of foxes are to be found. The fox is hunted there, but it is only for amusement: for years elapse without an instance occurring of a single lamb being devoured, by foxes, in a whole parish. But if the advantage of society is not now promoted by the pursuit of game, it is, as has been already shown, almost always, in some degree, injured. The sportsman can seldom continue his pursuit, in a great part of this county, for a few hundreds of yards, without committing some petty trespass. The anxiety of those, who, by the laws and customs of the country, are the exclusive proprietors of game, to secure the enjoyment of it, may be injurious in other respects. The following instance will exemplify this: In a county not far distant, the soil of a great part of which is fertile and highly cultivated, the depredations committed on the crops, by rooks, particularly on the wheat, during the Winter, was found to be so enormous, that, some years ago, a meeting of the husbandmen assembled, to consult on the means of preventing so great a loss, as well to themselves as to the public. The method agreed on was, to employ a person to lay down paste, in which arsenic was mixed, in proper places, for poisoning the rooks. This was done, and succeeded. The rooks eat the

paste, and numbers of their dead bodies were seen strewed in the fields. The husbandmen, rejoicing at the success of their scheme, were in hopes that perseverance would rid them of their wasteful enemies. But accounts no sooner reached the fox-hunters of the county than they took alarm, lest the foxes, eating the poisoned rooks, should take the deleterious potion into their stomachs, and perish; and the amusement of fox-hunting be thus disappointed. A meeting of the justices of the peace was, therefore, called, and injunctions published, forbidding all persons, under severe penalties, to expose poisonous substances in the fields: Thus the rooks are again allowed to multiply and prey on the corn fields.

Since the circumstances which gave rise to the laws and customs relating to game are entirely changed, it would probably be proper that some change should be made in those laws and customs. But it may, perhaps, be thought that too much has been already said on the subject; and, therefore, it shall be left to the judgment of the public.

CONCLUSION.

MEANS OF IMPROVEMENT, &c.

HAVING now, with all possible diligence, explored the county of Lanark, in its present situation and circumstances, and more especially in such as bear any relation to the most substantial national resource, the agriculture of the country, we come, finally, to inquire into the possibility of making such improvements in this as to correspond with the advancement of the other industrious arts, and the growing population, and so to give some prospect of security to the continued independence and prosperity of the nation. Nor ought we to despair of this being accomplished, notwithstanding some circumstances in the climate and soil adverse to fertility, which have been already noticed. Though the climate is unsteady, its variations seldom go to destructive extremes. If Britain seldom enjoys the sun in unclouded brightness, its corn fields and pastures are rarely parched with his scorching rays; successive showers, at intervals, generally not very distant, irrigating the earth, and keeping up the verdure of the season. If the warmth is not sufficient to forward the progress, and exalt the juices of the most delicate fruits, it seldom fails, when aided by the industry of man, to bring those, which are absolutely necessary to the support of the inhabitants, to maturity. The soil, too, though subdued with more difficulty than in countries more favoured by nature, yields at length to the efforts of cultivation, as may be seen from numberless proofs over the country. Though agriculture, as a regular art, is but in its infancy, and has laboured under many difficulties, it has made considerable progress, and has paved the way for more important improvements. Even in these northern districts, instances occur, of land, formerly barren, now producing corn crops, which would be thought large in countries naturally more fertile. When we consider, also, the spirit and enterprize of the inhabitants, and how far they have

gone beyond the neighbouring nations in other branches of industry, there is no cause to think they should be deficient in the cultivation of the soil: and, we may reasonably hope, that, with proper encouragement, the agriculture of the country might not only furnish an ample support for the present inhabitants, but for a much more extensive population. Though speculative calculations are not greatly to be depended on, it may be agreeable to see that such might, in some measure, be the case, even in the populous, and comparatively barren district, which is the subject of this Report. The total surface extent has been supposed to be 445,440 acres. The cultivated lands, and wastes capable of being cultivated for corn, may be about the half of this extent, or 222,700. Agreeable to the practice of this and neighbouring counties, as stated page 69, of allowing the land, which has been cultivated, to meliorate by pasturing, let us suppose two-thirds to be always in green crops, fallow, hay, and pasture. If 74,000 acres, the remaining third, were cultivated for the different kinds of bread-corn *, with all the attention which has been bestowed on particular spots, it does not seem to be extravagant to suppose, that each acre, on an average, might furnish bread for two people, besides seed and the food of farm horses; and thus the produce of the county would feed all its present inhabitants, and furnish a part of what is consumed by other horses, &c. Nor need we limit the fertility of the county to this extent. Well cultivated land returned to pasture would still be increasing in fertility—every increase in crop would occasion an increased quantity of manure—and the fertility of the land, and the quantity of corn it could produce, would gradually become greater.

A person who, from early life, has been taught to admire the superiority of the British constitution, as the most favourable to civil liberty, will naturally be led to attribute

* It is to be observed, that the poor use a great deal of meal made of barley and pease.

the national prosperity chiefly to this cause. From a justifiable partiality to the institutions of his country, he will view with pleasure the attention which has been paid to the comfort and convenience of the whole society, and the equitable laws which encompass the rights and properties of the meanest. He will consider the administration of these as having called forth the native energy of the people, and fostered that prosperity to which they are arrived. Convinced that the perfection of political liberty is the happiness of a nation, it will scarcely be possible for such a one to avoid turning his thoughts that way, when proposing measures for the improvement of agriculture; and surely there can be little cause to fear, that, in so doing, he can give offence to a public, whose partialities, from the same cause, must be the same with his own. His fate, indeed, may be like that of the prophetess Cassandra, or of those boys, mentioned in an ancient book which we all pretend to revere, who, "sitting in the market place, piped, but no man danced,—grieved, but no man mourned." It is incumbent on him, however, to state what he apprehends to be the truth. It may not be useful at present, but it will at least be innocent; and, should it furnish hints to be improved on in future times, it will not be without effect.

In the prosecution of this inquiry into the means of promoting the success of agriculture, we shall first consider how the great obstacles, enumerated in the last chapter, may be removed, taking them in the order in which they are stated, and then venture a few hints for improvements in some other particulars.

The first obstacle stated, was the low estimation in which husbandmen are held in the scale of society, and, more particularly, the marks of degradation affixed to the profession, by certain laws and customs of the country. Mankind are so much governed by habit, that what is perpetually passing under their eye scarcely strikes them. For this reason, it is probable, this obstacle will be thought frivolous; even its existence will, perhaps, not be admitted. But let it be re-

collected; that roturier, boor, clown, country fellow, &c. are terms of contempt in all the countries of Europe; and no person of ordinary observation can avoid seeing, that the other classes of society, in their intercourse with country people, look as if they would say or think, "Rusticus es, Coridon!" A girl bred in a neighbouring town, accompanied a party on a visit to a country house: The country people entertained their city visitors with great hospitality. Tea was served, accompanied with the richest cream the dairy could afford. The girl, on her return, observed, that every thing was coarse in the country. How clumsy, said she, was the cream we got to tea! The instances given in former parts of this Report, of mill multures, work at roads, customs at fairs, &c. may serve to illustrate the remainder of what is stated as an obstacle.

The great trust committed to husbandmen, of propagating and managing the provisions of the community, is an office of the first importance, and is, surely, in the eye of reason, entitled to respect. The difficulties, from soil and climate, with which the husbandmen of these northern parts must struggle, are sufficiently discouraging. Instead of additional burdens, every thing should be done to encourage and enliven their useful toil. All laws and usages, therefore, which bear unequally hard upon husbandmen, or affix any thing like degradation or servitude to the profession,—all the privileges of other classes, which, in any manner, are at variance with their just rights, ought to be abolished; and, so far as it were practicable, and consistent with justice to the rest of the society, every encouraging mark of distinction should be bestowed. The Board of Agriculture are now the established patrons of the art; and to them its professors look up for relief and encouragement. To their wisdom these rude hints are submitted.

If the legal degradations alluded to (the more weighty part of the obstacle) were removed, the popular prejudices would follow of course; and to this the correct conduct of husbandmen would greatly contribute. There is no profes-

sion in which there are fewer temptations to fraud and low cunning than that of agriculture. No nefarious practice, which a husbandman, in the course of his business, could resort to, nor even a whole life of deceit, could add any thing considerable to his wealth; but the discovery of his baseness would probably ruin him. For the proof of this we may have recourse to common experience. Look to the thriving husbandman! He is, indeed, active in his business and attentive to his interest; but, in his transactions with others, he is open, candid, and sincere, ever studious to avoid taking, or appearing to take, undue advantage. Again, those who are guilty of knavish practices, feeling themselves depressed with a sense of the impropriety of their own conduct, and the imputations it draws upon them, are generally feeble in their exertions, and their affairs unprosperous. Neither does this line of business prompt to other unsocial passions. The interest of a husbandman is never hurt by the success of neighbours; on the contrary, a number of industrious and successful cultivators is the best neighbourhood for each of them. Hence there is little room for malice and envy arising among them. Those, therefore, who allow themselves to act a mean, shuffling, dishonest, or unhandsome part, are doubly culpable, deserve the abhorrence of all the virtuous of their order, and ought to be excluded from the benefit of the society, having forfeited all right to the character of husbandman. The writer thinks himself thus justified, in earnestly admonishing the people of this profession, as they regard their own interest, the honour and reputation of their order, and the success of the art in which they are engaged, that, while they are diligent in their labours at home, and attentive to all the minutiae from which their interest and advantage is derived, when they are necessarily called out to the commerce of the world, they would avoid all deceit, all the chicanery of mean jobbers, and be open, just, and liberal, in all their transactions. Let strict probity be the rule of their conduct;—in short, let them be what husbandmen really ought to be, and then they

will deserve the respect of the public, and, probably, at length attain it.

The second obstacle, was the discordance between the landed and manufacturing interests. The consequences of this were exemplified in the operations of the corn laws. It requires no great ingenuity to discover, that the jealousies subsisting between these two classes are futile, their interests being so intimately connected, that whatsoever depresses the one must be injurious to the other. The advancement of manufactures, and the increase of the numbers they can employ and pay, by enlarging the market for all kinds of land produce, is the most powerful inducement to improvements in cultivation, and perhaps the only effectual one to attempt the improvement of land originally barren. The greater the success of the cultivation of the country, in multiplying provisions, the support of manufacturing people will be the more certain and regular, and the bread made from the corn produced in the country incomparably more wholesome than that from foreign corn, frequently heaped up in granaries till the mephitic effluvia emitted from it is insupportable.

We have seen, that all the laws obtained, with a view to raise the price of corn, have been unavailing, and that the interest of agriculture seems to have suffered in the contest. It is time, therefore, that such useless restrictions were removed. But the law, by which a bounty is offered to encourage the exportation of British corn to foreign countries, has been supposed to be the cause of rendering the quantity more abundant in the home market, and so to have lowered, instead of raising the price of corn. Whatever has been the case, this law seems not only to be unnecessary, but unjust. If it has had a tendency to raise the price of corn in this country above that in other countries, it was doing injustice to the industrious consumers, and checking the progress of manufacture. If it lowered the price, it was defrauding the cultivator of a part of his just recompence, which ought always to be, in some proportion, to the vigour

and success of his industry. At any rate, it was abstracting a part of the funds levied, for the support of government, from the whole community, to favour one part of it, in opposition to another, or rather, perhaps, to favour other nations, in opposition to the whole. The occasional bounties given to encourage the importation of corn, on the prospect of scarcity, seem to be no less partial and improper. In a nation where commerce is so flourishing and extensive, and where all kinds of industrious labour are so liberally rewarded, there can be little cause to fear but corn, as long as it is to be found in the world, will be brought to so good a market. It would, no doubt, be somewhat higher priced in proportion to the scarcity; but, in justice to the husbandman, the price ought to be something better, when the quantity raised is less.

Had the commerce in corn been always free, secure from the interference of executive government, and without restraints or bounties of any kind, it is probable that agriculture would not have been left so far behind. But in the state in which it now stands, compared with other industrious arts, it might, perhaps, be of importance, that some small duty were laid on foreign corn imported, to compensate the husbandman, in some measure, for the difficulties of soil and climate, high rents, great expence of cultivation, &c. The great proficiency made in the different branches of manufacture, by the expertness of artizans, and the abridgement of labour, from the invention and improvements of machinery, may enable manufacturing people to give their brethren, the cultivators of the country, without any disadvantage, this indulgence: and, if agriculture should be thus enabled to provide amply for the wants of all the inhabitants, it would, in the end, tend greatly to the advantage of manufacture. Such a duty, however, ought to be very moderate, and not fluctuating with the market prices, but the same at all times. The legislature might also assist the agriculture of the country to correspond more completely with an increasing population, by giving all necessary indul-

gence and encouragement to the cultivation of every kind of improveable wastes. This it would be the more enabled to do, if the money bestowed in bounties on exportation and importation were saved.

It would tend to destroy the unfortunate alienation between the agricultural and manufacturing classes, if the latter, instead of being collected in groups, were more regularly dispersed over the country. It is now obvious, that, so far from being necessary to have all the operative people, employed in the principal manufactures carried on in these provinces, closely assembled together, it is frequently more convenient that they should be separate. It has long been the custom of the great manufacturers of Glasgow and Paisley to employ weavers, &c. living 40 or 50 miles distant, as well as in intermediate places; and, not many years ago, a considerable part of the linen manufacture of Edinburgh was executed by weavers of this county. If any disadvantage had been experienced from this practice, it would have been discontinued, and the operative people invited to assemble more closely. On the contrary, it would appear to be, in every respect, more advantageous. Operative people, living separately in the country, are generally more orderly and attentive to their business, less given to cabal and riot. They save something by the difference of house rent, carriage of fuel, and provisions, &c., and are sometimes enabled to provide a little for times of disease and old age. To the general cause of agriculture it would be very advantageous. The offals of all kinds, which amass around the habitations of man, though nauseous when accumulated, are, by the wise appointment of Providence, highly beneficial, when spread over the earth. These can only be carried to a short distance from great towns, and much is washed away, and lost. But as every thing cast off by the inhabitants of the country produces fertility, the effect must be greater in proportion to the numbers and regular dispersion of these inhabitants. Connection would be formed between husbandmen and operative manufacturers residing

among them, and a mutual interchange of good offices would take place. While the former accommodated the latter in carriages and the like, the latter, with their families, would be disposed, in return, to assist in some of the most urgent labours of the field. Habituated to these occasional exercises, they would be better fitted, and take more pleasure in performing them. Some of the children of such manufacturing families would incline to work always in the fields, and, as they grew up, engage in the labours of agriculture, and thus manufacture, instead of abstracting the labourers from agriculture, would serve to recruit them. On these considerations, it would appear to be proper, that convenient houses for the reception of weavers, or such other operators in manufacture as perform their work single handed, were erected, one or more on a farm, on all farms which lay near the high roads communicating with such towns as are the centres of their manufacture. Each of these houses should have as much land attached to it as would serve to feed a milch cow and furnish potatoes and greens to the family, to be cultivated by way of relaxation in spare hours. This topic is trite; but the advantages which would arise from its being put in execution are too numerous for us to take time to expatiate on them at present, and too obvious to require it.

The third obstacle mentioned, was the overstretched land rents, &c. It is difficult to say how this obstacle can be removed. While farmers are to be found, disposed to take leases of land at an extravagant rent, it would be talking to the winds to attempt to persuade landholders to rent their lands lower than the value, which, according to the partial eye with which every man regards that which is his own, they think it worth. And all other means to regulate the rent of land would be an encroachment on property, the protection of which every British subject thinks his birth-right. This having been the basis of our prosperity, it is the earnest wish of the writer it may never be infringed.

The adjustment of rents must, therefore, be left to time and the liberality and good sense of landlords.

The same may be said of the fourth obstacle, the deficiency of the capital employed in agriculture for the purpose of carrying the improvement of the country to its full extent. While the rent of land continues to rise as fast, or perhaps faster than its value increases, the stock engaged in agriculture cannot much augment: and, while greater profits, and less laborious exertions, await other branches of industry, little capital can be drawn from thence to agriculture. It is true, indeed, that people frequently purchase lands with part of the surplus wealth amassed in trade, and apply part to the cultivation; but the quantity of food for the support of industrious consumers, raised by such cultivators, is always far short of that which the frugal economy of professional husbandmen produces. Besides, the recoil of wealth from trade to the purchase and cultivation of land, is limited, all lands held under entail being out of its reach; and such lands generally stand most in need of farther improvement.

The fifth obstacle stated, (and, perhaps, the greatest to the general improvement of agriculture) was the great land properties, the shortness of the leases given to the farmers who occupy them, and the frequency of changing those farmers at the end of every lease. It was already observed, that, in consequence of this, the interests of the landlord and the farmer are at perpetual variance. Those who have the management of great estates are sensible that it is so, and many expedients have been devised to prevent the farmer from getting the advantage. Pretended doctors in agriculture have been consulted, by whom rules for cultivation, and other profound schemes, have been prescribed, to bind farmers to promote the advantage of their landlords, without regarding their own. But is it rational to expect energy from such farmers, who must ever bear in their minds the lamentation of the poet?

Sic vos, non vobis, fertis aratra, boves!

It is sufficient barely to state this system, to show how unfavourable it must be to the success of agriculture. It is very questionable if a continued perseverance in it would be consistent with the private interest of the landholder. Regulations are prescribed, and frequently forgotten; but no attention which can be paid by the managers of great estates can make farmers strictly fulfil the letter of them, when they apprehend such regulations are disadvantageous to themselves; nor have the decisions of the courts of justice been favourable to the enforcing of such capricious restrictions. The chief effect of those restrictions, therefore, is either to damp the spirit of farmers by enforcing them, or to injure their morals by the temptations still found to elude them. Hence it would appear, that the private restraints imposed by landholders on their farmers, with a view to raise the rents against the end of the first leases, have as little efficacy as the public restraints on the commerce of corn. The rent, or yearly value of land, can be increased only in three ways: 1st, When the growing prosperity of the country occasions a greater abundance of money, and, of course, the value of money sinks, the money rent of land naturally rises in the same proportion. 2^{dly}, Proprietors of land, by laying out expence on the improvement of it, such as, for inclosing, draining, or the purchase of manure, may increase the value. 3^{dly}, An industrious farmer may, in the course of a lease, increase the fertility, and, consequently the yearly value of the farm. All increase of rent, which is occasioned in the first way, evidently belongs solely to the proprietor. The increase, in the second way, being purchased at his expence, equally does, and, accordingly, both proprietor and farmer have those improvements in view in fixing the rent. The increase of rent, occasioned the third way, seems, in equity, to belong chiefly to the farmer; that is, so far as the increase of fertility has been really occasioned by his skill and attention: for the first cause of the increase of rent, and even the second, in the article of inclosing, &c., is so intimately combined with the third, that it is difficult

precisely to determine the amount of each. However, it would seem, that a good farmer is, in equity, entitled to some recompence for his uncommon toil, skill, and attention, more than he can obtain in the course of an ordinary lease. At least, there is no doubt that all farmers think so: and, while their landlords are of a different opinion, and disposed, at the end of every lease, to let farms to new tenants, for a small advance of rent above what the old ones think themselves able to pay, farmers will always be cautious that landlords shall obtain as little advantage as possible from their labours.

In order to get rid of this great bar to the progress of agriculture, it would seem proper, that the possession of farmers were made perpetual. It is probable, that landlords may stare at such a proposition. But, it must be remembered, we are not addressing ourselves to the prejudices of any particular class, but considering what might contribute most to the general good. Besides, no agrarian law is meant here to be proposed, nor any infringement on the established rights of individuals. Though the possession of farmers were rendered perpetual, or to last so long as the same family chose to continue in the farm, the landlord would still have the same right to the regular payment of rent, and to eject such farmers as should be found deficient in that duty. In order to adjust the quantum of rent, according to the circumstances of the country and the state of the farm, at the end of every 20 years, an inquest of impartial men of judgment might be appointed, to take cognizance of such alterations as might have taken place during that period, and affixing the rent for the next 20 years accordingly, with an equitable regard to the just rights of both parties; and this might frequently be done by the parties themselves, without any assistance. The farmer should have the property of the trees he might plant in places unfit for tillage. If it should be no longer convenient for the family of a farmer to continue in the possession, the intention of removing, with the causes which induced it,

should be intimated, in proper time, to the landlord, for his consideration, that, if he should think it reasonable to accept of the resignation, he might appoint the farm to be visited, and, in case it has suffered any damage, this damage should be estimated, and, like rent, should be a preferable debt.

In this manner, the interest of landholders would, probably, be as effectually secured as by all the complex refinements which have been devised for that purpose. They, and their people of business, would, at the same time, be freed from the harassing circumstances accompanying the attempts to carry those refinements into execution. To enjoy the income of a great estate, and to produce that income by cultivation, are two employments of a very different nature. It is probable, that those whom Providence has destined to the first may frequently be mistaken in many things which relate to the last. It would, perhaps, be better, therefore, to leave the cultivation of the country to those who are engaged in it. A landlord would have no cause to fear, that, by making his farmers somewhat more respectable, he would be less so. He would not be less the object of respect, that he was no longer the object of dread. And, surely, the respect of independent men is more valuable than that of slaves.

We should thus have a permanent race of husbandmen, each generation of whom would derive knowledge in their profession from the experience of their predecessors. Freed from embarrassing restraints, and satisfied that they and their children would enjoy the just recompence of their important labours, they would be studious to know, and diligent to execute whatsoever might tend to increase the fertility of their farms. Though the increase of the capital employed in agriculture might be slow, it would be more certain among a steady race of husbandmen than when they are perpetually shifting; and, as it increased, the operations of agriculture would be more energetic; and the high rents, and any reasonable addition which might be

made at the end of 20 years, would be less distressing, as the operations of agriculture became more powerful.

Before we quit this part of the subject, it is proper to observe, that, though it is recommended to landholders, for the sake of their own ease and advantage, as well as for the good of the public, to give farmers a more steady unencumbered tenure of their possessions, it is not meant that those landholders should be deprived of the choice of using their property as they think proper. But there could, surely, be no harm in empowering incumbents on entailed estates, if they should choose, to give perpetual leases to farmers, when such leases had no tendency to injure the rental. Nor is it wished, that such land proprietors as incline to make improvements on any part of their estates should renounce that respectable amusement. They cannot, perhaps, entertain themselves in a manner more rational or more useful. Their greater leisure for inquiry, and their superior ability of making experiments, might lead to discoveries, important to the cause of agriculture, which could not so certainly be derived from the practice of ordinary husbandmen. Happily the late discoveries in chemistry and natural history have now overthrown those false and absurd theories with which the practice of agriculture has too long been encumbered. Speculative people, who have aimed at being more wise and learned than the laws which nature prescribes to us, seem to admit, and, to take an easier way of attainment than she has directed, have, one after another, advanced their systems. By those blind guides the agriculturist has been led to grope and stumble in the dark, and, when he was made to believe he had laid hold on the truth, has found, in the end, that he only grasped error. The discoveries alluded to have restored him to the day, and taught him not to enter the cavern of inquiry without the torch of experiment in his hand. Though those discoveries should proceed no farther, they have been a great benefit to agriculture; but, it is probable, they will still have more considerable effect. A number of ingenious and

benevolent men are generously employed in making researches into the secrets of nature, for the benefit of mankind, whose philanthropy, compared with the sordid pursuits in which the bulk of the world are engaged, does honour to humanity. In the course of their investigations on the different properties of matter, new sources of fertility may be discovered, and new means of increasing our harvests, at a moderate expence, may be found. It would be an employment becoming landed gentlemen to encourage such researches, and to carry experiments into practice, on such discoveries as may result, in order to make the utility evident to husbandmen.

If this principle be admitted, that the more those who are employed in agriculture are engaged, by the prospect of advancing their own interest, to conduct it with vigour, the improvement of the country will be more successfully promoted, little need to be said respecting the sixth obstacle. From 100 to 150 acres of arable land is sufficient employment for the activity of one man. If the farm house is placed nearly in the centre, manure can be carried, work conducted, or any thing looked after, on all parts, with very little loss of time: and, on farms much more extensive, it is obvious, this cannot be the case. To repeat more arguments in favour of moderate farms seems now to be needless.

The seventh obstacle, the effect of the game laws, it has been already observed, is of an inferior kind, and the nature and extent of the injuries it occasions have been fully illustrated. We, therefore, proceed to offer a few hints on other particulars, by which the improvement of agriculture might be promoted.

We shall begin with the natural pastures; that is to say, those parts of the country which, from their elevation in the atmosphere, or the inequalities of their surface, are unfit for tillage and corn crops. All thoughts of making any improvements on those having been long ago given up, they are left to the sheep to gather what sustenance from them

they may naturally yield; and a few sheep farmers have engrossed the possession of a large extent of country. In this condition, those pastures, which, in this county, are about half the surface extent, must be gradually diminishing in their real value, and the subsistence of the flocks, when deprived of the aid of human industry, more scanty and precarious, and, of course, in proportion to the hardships to which the animals are exposed, the benefit derived from their wool and mutton must be less considerable. The injuries which time operates on a neglected country, being slow, are less palpable, and, perhaps, will not be generally admitted; but a little reflection will convince the unprejudiced mind that they must certainly take place. Every new gully which a torrent forms must diminish the extent of surface pasture. Wherever surface water is, by any accident, detained, it will prey upon the esculent grasses, and nourish mosses and other useless herbage in their place. The herbage rejected by sheep will gradually prevail over that which is eaten. And thus the quantity of pasture must be continually diminishing. It would, therefore, seem proper, that sheep were put more under the protection of man, by engaging a greater number of people to follow a pastoral life; so that each, in the pursuit of his own interest, by providing better accommodation for his flocks, may render the pasture grounds of the country more valuable to the public. The first step to this purpose would be to begin with making a sufficient number of inclosures on the pastures. For this the hills always furnish abundance of stones, and the practice of the inhabitants of the district of Carrick, in Ayrshire, and of the counties of Wigton, Kirkcudbright, and the western part of Dumfries, is a very good example. But the author of this Report, in a former work, to which, it is hoped, the public will pardon his repeatedly referring, has, from inferences drawn from the nature of sheep, stated a number of observations on the means of deriving the greatest advantage from pasturing them. As it would be improper to swell this Report with long extracts, he begs leave again

to refer to that work *. It is true, indeed, the experience from which those observations were derived was narrow; but he having since, in an extensive tour made through the southern pastoral districts of Scotland, &c., in the year 1793, under the direction of the British Wool Society †, found nothing material to contradict what he had before advanced, with the greater confidence recommends it to the public.

If some such practice, as has been there recommended, were to be adopted, the pastures, instead of degenerating by neglect, would be gradually improved. The flocks, under the more immediate protection of a number of industrious shepherds, employed in supplying their occasional wants, and defending them from incidental injuries, would suffer less by disease and hardships, and the profit arising from tending them would be much more considerable. Sheep attended in this manner would always be in good habit, and the owners could thus dispose, at all times, of a great part of their surplus stock immediately to the butcher. Being thus freed from the necessity of adapting their rule of breeding to the prejudices of a certain set of purchasers, they would naturally be led to consider what kind of stock, taking carcases and wool, and all circumstances together, would be most advantageous in their respective situations. And as any addition to the value in quantity or quality of the wool, not counterbalanced by other circumstances, is a valuable consideration, they would be induced to pursue every prudent measure to improve the fleece. What the patriotic intentions of the British Wool Society, from a concurrence of adverse contingencies, has not been able to effect, would thus take place of itself.

A number of collateral illustrations might here be given, in support of what is above stated; but all of them, upon examination, seem so palpable, that to trouble the intelligent reader with the perusal of them would be offering some

* Naismith's Thoughts on Industry, &c. Book IV. Chapters i. ii. iii. and iv.

† See Naismith's Tour, &c. Edin. printed by W. Smellie, 1795.

kind of affront to his understanding. We go on, therefore, in the next place, to observe, that it would be advantageous to the success of agriculture, if husbandmen, as a particular class of the general society, were more intimately united. The insulated situation, and sequestered manner necessarily attached to the life of husbandmen, has been already mentioned, as tending, in some degree, to depress that order; and such measures as they have taken for their joint support have been described. But other important purposes might be effectuated by a complete association of all husbandmen into particular societies, consisting of moderate contiguous districts, so as to be most convenient for the members assembling or communicating on proper occasions. All the members of each of those societies ought to be bound to submit to the general will of the society, and to obey its laws. Each member should also pay stated contributions into a common purse, to be applied, as circumstances require, for the benefit of the society. Committees should be annually chosen, to manage the business, and construct such laws as may be requisite for the common good, and these might afterwards be submitted to the general meetings for their sanction. From the wisdom of the regulations, and integrity of administration observable among the friendly societies of artificers and others, there is no cause to think that husbandmen would, in any respect, be more deficient in the conduct of public business, and especially such as was intimately connected with their own profession. We may reasonably hope, therefore, that the operations of such an association of husbandmen would, in many ways, conduce to promote the success of agriculture. It will suffice to give the two following instances, by way of illustration.

1st, It might be made a general law, in every society, That all the members were to be bound to extirpate, while in the flower, all those weeds, within their respective possessions, which bear seeds, in any degree, winged or transportable by the winds, such as the common dock (*rumex vulgaris*), the burr thistle (*carduus lanceolatus*), the marsh

thistle (*carduus palustris*), the prickly thistle (*sonchus asper*), the sow thistle (*sonchus oleraceus*), hawkweed (*leontodon pilosella*), the dandelion (*leontodon taranacum*), tussilagow (*furfurum*), ragwort and groundsel (*senecio jacobina vulgaris*), &c. whether these were growing in the pastures and cultivated lands, or by the sides of highways, brooks, ditches, or fences, any where within the bounds of the farm. That this work might be duly performed, one or more of the members of each district might, by turns, be appointed censors to visit all the farms within it, at the proper seasons, and report. If any individuals had been neglectful, fines, proportioned to the degree of negligence, ought to be imposed and levied by the managers of the society, for the use of the common stock. In this manner, those weeds which are so great a nuisance, by being collected before the seed was formed, might be converted into useful manure. And when the perpetual influx of adventitious seeds was checked, each husbandman would have only to war against the perennial roots of such as were within his own farm, and would more easily subdue them.

2dly, The common stock of every society might be chiefly employed for the protection and defence of the property of all the members within the district, against all the different kinds of enemies to which the produce of the fields is exposed; and that not only by checking actual depredations, but by preventing the repetition of them. Thus, if the attention of a number of societies, spread throughout the country, and possessed of proper funds, were continually employed in counteracting the injuries done to the property of husbandmen by the sparrow tribe, by rooks, by rats, by moles, &c., the immediate depredations of these numerous wasteful enemies would not only be controuled, but, by a system of hostility regularly pursued against them, the different races would be so far subdued as soon to become no longer formidable. The same would be the case with all the idle breakers of fences and wanton destroyers of the fruits of the field. So soon as a few examples had

convinced them that they were no longer committing trespasses on the property of a forlorn individual, but on some member of a watchful society, ready to take the alarm, and in condition to seek redress, they would be much more cautious to avoid offending; and thus the prevention of crimes, which is still of more importance to society than the punishing of them, would, in some measure, take place.

Agriculture would derive many other advantages from husbandmen thus acting collectively. "As iron sharpeneth iron, so doth a man the countenance of his friend." In their frequent communications, their transactions, in the line of their profession, would be a common topic of conversation. Every one would be better informed of what was going on among his neighbours; and an emulation would take place among all, to vie with those who were most active and expert. If any superior practices in agriculture had taken place in another district, such associations would be well adapted to procure information concerning them; and, by a judicious application of part of the common funds, to ascertain, by experiments, how far such practices were suited to the district in question. By the same means, experiments might be made with the seeds of plants not in common use, to know in what degree they would tend to augment the general produce. For these purposes, a small piece of experiment ground, in each district, might be convenient.

From the general tenor of this Report, by which it has been recommended to make it the interest of those who are employed in the cultivation of the country, to carry it to the greatest possible extent, and to confide principally on them for that purpose, it cannot be expected that much will be said on the practice of husbandmen individually. In the former Report it was mentioned, that the lateness of the Lanarkshire harvests was one great cause why they were less productive. The cause of the late harvests was ascribed to a combination of the effects of soil and climate, minutely stated in the first chapter of this work;

and two things were recommended to palliate this evil :
1st, In the cultivation of the land, to attend to every thing proper to put it in such condition, that the seed, when sown upon it, may enjoy every advantage which the weather offers ; and this is all that can be done to forward the harvest. 2^{dly}, Diligently to pursue every possible means of getting the corns quickly and safely gathered in, which is all that can be done to render the produce of the soil effective.

With respect to the first, dividing the particles of the soil, in a certain degree, so that while it gives admission to the roots of the plants committed to it, it may retain a sufficient quantity of moisture for their support, during the Summer's droughts, is requisite. Both labour and manure are applied for this purpose. But, to effect this, labour can only be applied in a dry season ; and, where the substratum is impermeable, and the soil dense, by the first great rains which succeed, the effects of labour are, in a great measure, undone. It is presumed that all practical husbandmen will acknowledge this to be true ; and, therefore, since the expence of labour is now become so excessive, it would seem to be an object of great importance to consider by what means the least possible application of it might have the greatest effect. It is universally acknowledged, that the less every kind of soil is overloaded with stagnant moisture, in wet times, it is the more disposed to retain a sufficient portion in droughts ; and that the influence of the weather, when not prevented by the stagnation of water, tends to separate the parts of the soil, and prepare it to give admission to the roots of vegetables. The natural inference from this is, that the greatest attention ought, at all times, to be paid to surface draining, and laying the land in such a way as quickly to throw off superfluous water, and to plough as much as convenient of what is intended for Spring crops, with a deep furrow, in the early part of Winter, that there may be sufficient time for the action of the weather, to prepare it for the reception of the seed. It is true, indeed, that this operation of the

weather, which prepares the soil for the intended crop, also fits it for cherishing the perennial roots of any weeds which may be lodged in it. But every expert husbandman, in the course of his economy, will be attentive to subdue these; and, by proper alternations of pasture and tillage, of rotations between culmiferous and broad leaved crops; of hoeing and weeding, as far as circumstances admit, he will generally succeed. But if he should not, recourse must be had to Summer fallow. In all other cases, except that of destroying the roots of weeds, it would probably be prudent to dispense with repeated ploughings for the same crop, and rather to solicit the assistance of natural agents to concur with the operations of a less expensive labour. Manure, as well as labour, is applied for adapting the soil to the nourishment of useful vegetables. No husbandman entertains a doubt of the good effects of applying those substances which he has been taught to consider as manure, as he has never found them fail, except when counteracted by labouring in improper seasons. After what has been said in the fifth chapter of this Report, of the substances used for manure in this county, it is needless to attempt a classification of those substances. A collection of animal and vegetable matters will always be the most considerable, and, perhaps, the most important; and their tendency to putrefaction is evidently the cause of their beneficial effects. From the time they are committed to the ground till their total consumption, they are perpetually aiding the operations of the weather above mentioned. It is, therefore, the business of husbandmen, by every means in their power, to increase the quantity of this collection. But it does not appear to be necessary that they should be solicitous with respect to the precise state in which it is applied. The state of the weather, of the ground, the cessation of other business, &c. will be the best rule. It is true, that, notwithstanding that the new lights, which modern philosophy has communicated, have taught us

“ To know how little can be known,”

the itch for theorising is so prevalent, that speculative gentlemen are disposed to take the task out of the hand of nature, the most able operator, and advise husbandmen to elaborate, for the nourishment of plants, a certain degree of putrefaction proper for their food. This seems to be unnecessary. The writer of this has repeatedly had occasion, after the magazine of dung collected through the year was exhausted, to lay the dung of cattle, and their litter recently made, on land prepared for wheat, in the month of September; and, having marked the places where the unfermented dung was laid, though the quantity was less in the proportion it was less decomposed, he never could discover, through the progress of the season, that the crop was inferior. But though little delicacy need to be observed with respect to the time and state of applying manure, every husbandman must have observed, that the more accurately it is spread, and the nearer it is kept to the surface, its efficacy is the greater. This naturally leads us to attend to what is called top-dressing. The instances are few, in which top-dressings can be advantageously applied to the growing crops of corn in the northern parts of Britain: But there is no place where they may not be successfully applied to pasture and meadow lands; and it deserves to be particularly noted, that many substances, which have hitherto been found of little avail on grounds which are in tillage, have proved very beneficial to those which are in grass. It is believed, that every kind of soil which is disposed to crumble by the influence of the weather, will, after being thus decomposed, improve the verdure on grass grounds: and, it is certain, that every addition which can be made to the quantity of esculent herbage, on any ground, is the cause of that ground being more fertile in future.

As to the second article, the in-gathering of the harvest, though not less important than the preparation of the ground, less need to be said concerning it, the husbandmen of this county being generally pretty active in endeavouring to save the corn in rainy weather. One practice, however,

which has been successfully followed, and ought to be more general, shall here be shortly stated. When the corn is ready for the sickle, and the weather so damp and rainy that it cannot be got reaped sufficiently dry, the band of the sheaf is loosely tied round, near the top, and the root end being properly spread out, each sheaf, singly, is made to stand upon it. This is here called *gaiting*. These must be carefully attended to, and kept always standing, and they will become dry, in the first interval of fair weather, in a few hours. In the mean time, a sufficient number of little hollow cones, formed of spars and branches of trees, ought to be got ready on the corn field. The first time the corn is tolerably dry, it should be bound up and built round these, in little ricks, care being taken that, by using part of the sticks and branches, the lowest tier of sheaves may be kept from the damp ground, and the air allowed to pass under them. Such ricks may be built by a man standing on a short ladder, or portable scaffold, without compressing the sheaves by trampling on them: and if they are properly built, and the tops secured with a little thatch and a few ropes, they will stand safely, without the corn either springing or heating, till it is fully cured to be carried to the barn, or built in larger stacks. This will be thought laborious; but, in seasons when it is necessary, it is nothing to the labour which must be done, and the waste which ensues, after the corn has been drenched with repeated rains, and must be spread on the ground to dry.

It has been repeatedly hinted, that the future fertility of pasture ground is augmented in proportion to the additional quantity of sweet esculent herbage which can, by any means, be made to grow upon it; and, for this purpose, all kinds of top-dressings have been recommended. But the writer of this cannot help regretting that so little attention has been hitherto paid to the propagating of our native grasses. As they are hardy and congenial to the country, the reproduction, from a well chosen mixture of them, must certainly be greater and more unfailing, and tend more

to lengthen the verdure of the year. White clover, which is the most universal, and, perhaps, the most important, is almost the only one which has been a subject of cultivation. But there are others, a little attention to the propagation of which would thicken the turf and increase the quantity of esculent herbage. It is presumed, that no person who has paid attention to the different grasses prevalent in the fields, has failed to observe, that those pastures, which are found to be of the richest and best feeding land, always abound, particularly, with the foxtail grass, &c. But it is needless to enumerate the sweet native grasses here, the author, in the Appendix to a work to which he has frequently alluded, having described many of the most important, both for hay and pasture. About the same time, a much more able botanist, Dr. Curtis of London, was employed pretty much in the same way, and published a pamphlet, describing and recommending a good many of the native grasses, to which those who wish for better information may have recourse. It would, surely, not be difficult to propagate those grasses. It may always be observed, that any of them, of which a few are lightly interspersed through a field when first laid in pasture, from their superior congeniality to the soil and climate, annually extend, till the surface is, in some measure, replenished. It is probable, therefore, that if they were once more generally diffused, by mixing a small quantity of the seeds of any of them, which might be preferred, with artificial grass seeds, so many of their seeds would be shed on the ground, in the course of pasturage, that a rotation of tillage would not fully extirpate them. But, though it should not be safe to depend on this, if it were once common, it would be as easy to save the seeds of native grasses as those of rye grass. By thus attending to every means of extending the propagation of esculent grasses, the pasture would be more valuable, and the alternations of pasture and tillage, practised in this and other counties, would, in the most certain and easy manner, ensure a continued increase of fertility in the produce of corn.

THE END.

POSTSCRIPT

SUCH has been the fluctuation of the money value, and prices of things, since this Report was first published, that it became frequently doubtful what period should be taken for the rule; and some are stated as formerly given, and some as they stand at present. One matter, relating to money, it may be proper just to take notice of. The table of the minister's stipends, page 65, was taken from the Statistical Account of Scotland. Several of the clergymen have since been suing for augmentations. Some of these suits being still in suspense, we shall only add, that the stipend of each of the ministers of Glasgow is advanced from 163 l. to 200 l.



ERRATA.

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